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**Supervisor-Subordinate Dyadic Relations and
Person-Environment Fit: An Analysis of the
Interface of Perceptual Congruence and
Demographic Similarity, and their Influences on
Individual Work-Family Outcomes**

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Victor Wayne Nichol

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**SUPERVISOR-SUBORDINATE DYADIC RELATIONS AND
PERSON-ENVIRONMENT FIT: AN ANALYSIS OF THE INTERFACE
OF PERCEPTUAL CONGRUENCE AND DEMOGRAPHIC
SIMILARITY, AND THEIR INFLUENCES ON INDIVIDUAL
WORK-FAMILY OUTCOMES**

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BY

VICTOR WAYNE NICHOL

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ABSTRACT

SUPERVISOR-SUBORDINATE DYADIC RELATIONS AND PERSON-ENVIRONMENT FIT: AN ANALYSIS OF THE INTERFACE OF PERCEPTUAL CONGRUENCE AND DEMOGRAPHIC SIMILARITY, AND THEIR INFLUENCES ON INDIVIDUAL WORK- FAMILY OUTCOMES

BY

Victor Wayne Nichol

The notion that a good fit between person and organizational environment produces favorable individual and organizational outcomes is well founded in organizational behavior research. However, the congruence or similarity of supervisors and their subordinates in perceptual, attitudinal and demographic characteristics has not been modeled within this nomological framework. This shortcoming is particularly disturbing given the centrality and ubiquity of the interpersonal dynamics involved in the dyadic interdependency between supervisor and subordinate across organizations. Hence, this study explores perceptual and demographic similarity processes within the leader-member exchange relationship as they influence subordinates' ability to integrate work and child-care responsibilities.

Building primarily on the Dyadic Organizing paradigm of Graen and Scandura (1987), the psychologically driven Attraction-Selection-Attrition

theory of Schneider (1983), and the demographic distribution theory of Pfeffer's (1983) Organizational Demography and its progeny, this research provides a conceptual integration of this body of work. Specifically, a structural model is posited in which perceptual fit between supervisor and subordinate mediates the path between dyadic demographic similarity and individual outcomes for the subordinate to illuminate the cryptic "Black Box" of organizational demography.

The analysis of the mediation model eschews the use of problematic difference scores in regression estimation. Rather, the use of Edwards' (1993; 1995) polynomial regression, and an innovative application of multivariate regression, are used to eliminate spurious constraints on regression analysis and reveal the underlying three-dimensional functional forms of the relationships.

Results of the statistical analysis generally indicate that perceptual congruence is not a mediating process in the sample examined. Importantly, the findings do suggest that dyadic demographic similarity does not lead to favorable outcomes for subordinates, particularly for female subordinates engaged in dyads with female supervisors. Implications for management and future research are provided.

To my parents, Harold and Caroline, without whose love
support, encouragement and prayers this research and my
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***Regression Model Analyzed with No Mean Substitution**

CHAPTER ONE

INTRODUCTION AND OVERVIEW

I. Person-Environment Fit: Congruence in Organizations

The notion that appropriate person-environment (P-E) fit in organizations generates favorable individual, group and organizational outcomes and may ameliorate intraorganizational problems has become quite pervasive in management theory. In particular, empirical interest has centered on the interaction between characteristics of the individual and features of the organizational context as this nexus affects specific behaviors in the organization (Cheri Ostroff, 1993). Indeed, as Edwards (1996) indicates, "P-E congruence embodies the premise that attitudes, behavior, and other individual-level outcomes result not from the person or environment separately, but rather from the relationship between the two."

The conception of person-environment congruence is founded on the a priori assumption that individual workers—and consequently, organizations—will become more effective when the attributes of the individual and the work environment match or are congruent (Ostroff, 1993). That is, perceived or objective similarity between person and

environment along a number of dimensions is hypothesized to enhance a variety of outcomes. This view derives from several psychological theories. According to Schneider's (1983; 1995) attraction-selection-attrition model (ASA), individuals seek organizations with climates and cultures amenable to their psychological characteristics, organizations recruit and select suitably matched prospects, and ineffective matches culminate in departure from the organization. The long-term result is the growth of a homogeneous work force that defines the structures and processes in the internal organizational environment. In contrast, Pfeffer (1983), in his model of organizational demography, argues that demographic rather than psychological characteristics are the salient factors influencing behavioral patterns; essentially, demographic similarity within the organization induces frequent and meaningful communication motivated by interpersonal similarities and thereby facilitates organizational homogeneity. Tsui and O'Reilly (1989) extend Pfeffer in their relational demography model by analyzing the similarity—and dissimilarity—of the comparative demographic characteristics of members of dyads or groups situated to engage in continued interaction. Again, strong communication between dyadic or group members is predicated on interpersonal attraction, explaining the

effects of relational demography. In short, these separate lines of theory suggest that similarity between person and environment emerging from congruence in psychological attributes—attitudes, beliefs, and perceptions—and demographic characteristics—race, gender, work status, etc.—smoothes the person-organization relationship and enhances individual work behaviors and organizational functions.

Importantly, P-E congruence is not a monolithic field of research. Rather, person-environment fit analysis subsumes a set of related but conceptually distinctive constructs and processes. Edwards (1991) reports that congruence research encompasses a broad domain including person-job fit studies, research into individual differences (Hackman & Oldham, 1980; Hulin & Blood, 1968; Turner & Lawrence, 1965), value congruence research (Kemelgor, 1982; Meglino, Rawlin, & Adkins, 1989; Posner, Kouzes, & Schmidt, 1985), interpersonal agreement analysis (Berger-Gross, 1982; Graen & Schiemann, 1978) and social comparison processes research (Goodman 1977; Oldham et al., 1986). These distinctions are critical because the specific areas of congruence research have established, or have attempted to establish, constructs to measure their respective domain of P-E fit and cannot, in theory or in method, be transposed across fields unconditionally. In the words of

Edwards (1991), "the constructs and the processes represented within these areas are theoretically distinct, and research in one area should not be used to draw conclusions regarding another."

In view of the congruence (P-E fit) domain of research, prior theory appears to suggest that similarity between individual and organization is the preferred and most productive relationship. As Pervin (1968) has concluded:

[F]or each individual there are environments ... which more or less match the characteristics of his [or her] personality. A "match" or "best-fit" of individual to environment is viewed as expressing itself in high performance, satisfaction, and little stress in the system whereas a "lack of fit" is viewed as resulting in decreased performance, dissatisfaction, and stress in the system (p. 56).

However, despite the conceptual appeal of closely matching person and environment to elicit favorable outcomes, such a ubiquitous objective may at times damage the desired effect. That is, close congruence between the individual worker and psychological characteristics and/or demographics of the supervisor, shopfloor climate, or organizational culture might in certain instances produce adverse effects. In particular, it has been hypothesized that in the contemporary volatile global economy, the need to quickly infuse innovative or specialized talent into an organization could demand the placement of employees not congruent with the

organization along a number of "critical" dimensions (Ostroff, 1993). Specifically, when the external environment changes, an organization comprised of homogeneous employees may have difficulty adapting because it lacks the requisite human resources to assuage emerging business exigencies; hence, the demand for "incongruent" workers arises and must be satisfied to rescue the organization from economic demise.

As well, empirical evidence has demonstrated that varying types of congruence—or similarity—between worker and organization can be hierarchically arranged by importance relative to the respective needs of workers and the organization (Turban and Jones, 1988; Pulakos and Wexley, 1982). That is, depending on numerous factors, it appears that different psychological and demographic congruences will be more or less valuable to an organization contingent on intragroup and intergroup interrelations, organizational culture and subcultures, public image efforts, embedded work processes, and bottom-line economic performance objectives of the organization. Turban and Jones (1988) have recognized these congruence taxonomies predicated on their research into types of supervisor-subordinate similarity:

[The] pattern of differing relations with the dependent measures and the unique contribution of each similarity type for at least one dependent measure suggests that researchers should not discuss the

similarity effect, but should instead specify clearly the type of supervisor-subordinate similarity being investigated and consider possible mechanisms that underlie each (p. 233).

II. Supervisor-Subordinate Perceptual Congruence and Work/Family Integration: The Central Issue

The previous discussion illuminates the paucity of research that explores the effects of P-E congruence across many employment topics. A critical area in organizational studies that has not been researched sufficiently encompasses the difficulties experienced by employees when family responsibilities conflict with organizational responsibilities. Effectively, P-E incongruence occurs where an employee's need to attend to familial matters clashes with genuine or perceived supervisory expectations. The resulting dissonance, as Kossek (1990) has pointed out, can generate employee stress, role conflict and overload, diminished job satisfaction and commitment, and increased absenteeism, tardiness and turnover, and other effectiveness diminishing outcomes. Perhaps more important is the potential for conflict with management when an employee's work-family discordance produces intolerable levels of acrimonious "misunderstanding" between worker and management.

While the employee's organizational environment is structured hierarchically by managerial or supervisory levels, it is typically the

immediate or "line" supervisor who communicates directly with the employee, issues directives to the employee, and evaluates that employee's performance, work attitudes, and other work habits. Hence, the immediate supervisor serves as perhaps the most functional and visible connection to the employee's organizational environment. Critically, the immediate supervisor becomes the primary source of incongruence with the employee when various organizational issues, such as work-family integration, become conflictual. Moreover, supervisor-employee conflicts can be intensely exacerbated because of a supervisory lack of adequate information concerning an individual employee's work-family exigencies. The consequence is the appearance of a serious perceptual incongruence between worker and supervisor. That is, because the supervisor typically possesses only incomplete information about the employee's work-family integration efforts, difficulties arising therefrom may be incorrectly judged or perceived to emanate from employee intransigence—or from manipulative or self-serving internal motives in attribution theory. Subsequently, the employee perceives any supervisor admonishments to reflect a serious lack of supportiveness from management regarding workers' work-family needs. The perceptual

incongruence that results may generate some of the negative outcomes suggested above, damaging organizational performance.

In fact, the relations between subordinate and supervisor are central in this analysis. That is, supervisors are asserted here to constitute the most salient organizational feature that subordinates encounter and hence, this dyadic interdependency entails another source of P-E congruence: the extent to which the person (subordinate) has a suitable fit with his/her supervisor is critical. Indeed, this study seeks to analyze forms of subordinate-supervisor similarity—alternatively designated congruence—as they interact to generate various individual level outcomes. The dyad will be evaluated within the nomological bounds of several integrated leadership models resulting in a leader-member exchange framework (Graen and Scandura, 1987; Liden and Graen, 1980; Graen and Schiemann, 1978). It proposes that the exchange relationship of supervisor inducements given for superior and extra-role subordinate contributions is based on the quality of interdependency of each dyad rather than an identically structured supervisory relationship with all subordinates.

III. Overview of the Analysis: Research Questions, Anticipated Empirical Contributions, and a Methodological Innovation

The notion that a good fit (congruence) between person and environment produces favorable individual and organizational outcomes is clearly well founded in organizational behavior research. Indeed, the dyadic interdependency between supervisor and subordinate is the most fundamental source of person-organization fit; it constitutes the sine qua non for the effective performance of the larger organization. Where subordinate and supervisor misperceive each other's workplace motives, aptitudes, stresses and sensibilities, destructive interpersonal conflict will be generated, and the work relationship may become dysfunctional. This dilemma is particularly ominous when dyadic member perceptions regarding subordinate work-family conflict, i.e. child-care difficulties, and its attenuation of subordinate work performance, diverge. Given the prodigious influx of women of child-bearing age into the workforce since WWII, their consequent increased allocation of time away from the home, and the emerging psychosocial pressure on working males to contribute more to child-rearing activities, substantial strain on traditional work-family integration has developed. Hence, perceptual congruence on subordinate child-care and work discord entails a critical and rich research

context in which to examine the impact of gradations of subordinate-supervisor perceptual congruence on child-care related work outcomes. Moreover, the aforementioned theoretical tension between the ASA model and organizational/relational demography demands a resolution. The empirical explanation of the linkage between differences in supervisor and subordinate demographic characteristics, and organizational outcomes for subordinates, has not been forthcoming; it constitutes the “black box” of organizational demography (Lawrence, 1996). Finally, the traditional approach to evaluating congruence has been shown to be analytically exiguous such that new methodology is warranted. In light of these issues, this analysis will seek to fulfill the following objectives.

A. Objectives and Contributions

(1) This study will review and integrate the broad and somewhat disconnected domains of literature which directly or indirectly inform the supervisor-subordinate relationship and the development or attenuation of perceptual congruence.

(2) This study will specify a conceptual model that structures the relations between perceptual congruence and actual (demographic) similarity, as

both jointly affect child-care related work outcomes. The objective is to illuminate the intervening black box of organizational and relational demography (Pfeffer, 1983; Tsui and O'Reilly, 1989).

(3) The model will predict a mediated relationship between actual similarity and work outcomes through perceptual congruence. The statistical findings will illuminate the validity of the existence of a direct cognitive stereotyping path between actual similarity and work outcomes, as predicted by relational demography theory (Tsui and O'Reilly, 1989).

(4) This study will apply Edwards' (1993a; 1993b; 1994) polynomial regression approach in a unique field setting. The main effects portion of the model will demonstrate this technique's superior explanatory and conceptual rigor relative to difference scores. Moreover, the methodological approach used in testing mediation will involve the use of multivariate regression to assess congruence as a dependent variable, and where findings warrant, simultaneous equation estimation as proposed by Edwards (1995) will be applied to decompose the mediated relationship; such methods have not been employed heretofore.

(5) Finally, this study will seek to illuminate the understanding of child-care difficulties for working parents as an organizational policy imperative. Because the child-care and work-family integration literatures are theoretically and empirically porous, this analysis will fill conceptual gaps in child-care study. With respect to the intervening and/or direct processes of perceptual convergence between subordinate and supervisor, organizational policy initiatives involving supervisory training, as well as initiatives for improving employees' ability to perform through improved work attitudes and attendance records will be linked to statistical findings.

B. Conclusion

Thus, the analysis to follow will investigate the general proposition that improving perceptual congruence between an employee and immediate supervisor will enhance a diversity of individual and organizational outcomes. Specifically, the extent to which similarity in supervisor-subordinate perceptions—as a measure of person-organization congruence—regarding the employee's asserted problems with work-family integration predicts improved employee work behaviors will form the basis of this research. Such an approach to the analysis of work-family integration has not been formerly undertaken.

Furthermore, this research will seek to show that perceptual congruence not only is a direct antecedent of positive subordinate outcomes, but also that it is the mechanism through which other forms of dyadic similarity, especially demographic similarity, influence individual outcomes. Indeed, the latter supposition will seek to resolve the tension surfaced between Schneider's (1983) psychologically based similarity paradigm and Pfeffer's (1983) observable-variables approach to understanding the tendency to homogeneity in organizations. Importantly, the methodological technique to be applied in the analysis ameliorates a number of analytical problems described by Edwards (1991; Edwards and Parry, 1993a; 1993b; 1994). As Edwards has indicated, traditional approaches to congruence analysis have produced conceptually ambiguous results and have obfuscated directionality and magnitudinal change in dependent variables as the independent measures have varied. Moreover, the latent functional forms of congruence have been modeled as two-dimensional and linear without theoretical or empirical evidentiary support. To alleviate these problems, Edwards (1993a) has presented a polynomial regression method which permits a three-dimensional curvilinear interpretation of the congruence relationship rather than the limiting and misspecified two-dimensional one. Polynomial regression

facilitates a precise decomposition of dependent variables predicated on linear, interactive, and polynomial changes in the independent variables. Thus, incorporating this state-of-the-art method will provide a much clearer, more efficacious set of statistical results in this work-family congruence analysis.

As well, this study will seek to extend Edwards' polynomial regression method from simpler main effects models to analysis of a mediated model. This more complex type of relationship has not been examined in terms of polynomial regression previously. In conclusion, chapter 2 will provide a comprehensive review of the broad domain of theory and empiricism that are relevant to the analysis of supervisor-subordinate dyads. Chapter 3 will model the theoretically and empirically derived links between the various forms of congruence as well as their influences on individual outcome measures, and then present the hypotheses to be tested. Chapter 4 will specify and support the methodological approach taken in testing the hypotheses, including evaluation of the statistical techniques chosen and the survey instrument used and description of the data sampled for testing. Chapter 5 will present the results of all the analyses. Chapter 6 will conclude the

dissertation with an interpretation and discussion of these findings, and posit implications for management, labor and social policy.

CHAPTER TWO

REVIEW OF THE CONGRUENCE AND WORK-FAMILY LITERATURE

I. Introduction: Chapter Objectives

Chapter 2 seeks to meet several objectives central to understanding the theoretical and empirical bases for the overall analysis. The most salient goal in this chapter is to integrate and clarify the seemingly amorphous sets of existing expositions on the supervisor-subordinate relationship and its dynamics. This necessitates examining the roots, mechanisms, and consequences of dyadic interpersonal similarity to connect perceptual convergence between supervisors and subordinates to meaningful theory. Thus, in section II-A, the etiology of the attraction-selection-attrition paradigm (Schneider, 1983) and its foundation in psychological processes is presented to provide a theoretic developmental context. Section II-B reviews an alternative explanation for the growth of dyadic and organizational homogeneity, proposing that distributions of demographic and structural variables across organizations are superior predictors of behavior relative to psychological constructs.

Section III seeks to delineate the typology of person-environment fit theories and analyses that have proliferated at the expense of the individual level supervisor-subordinate analysis. Next, section IV seeks to transcend the negligence of extant person-organization/environment research, describing the theoretical and pragmatic prominence of supervisor-subordinate relations and reviewing important models pertaining to dyadic dynamics. Section V continues to ameliorate this inattention to the dyadic supervisor-subordinate dynamic; it constitutes the apex of the chapter through the pivotal presentation of three types of subordinate-supervisor similarity, which gives a taxonomic perspective to the structures and internal processes of dyads. Finally, Section VI reviews the work-family conflict literature to describe and elucidate topical the research context through which perceptual congruence will be examined. Section VII summarizes the chapter findings.

II. Theories of Similarity and Attraction: A Foundation for Congruence Research

In organizational research, the putative view that similarity between person and organizational environment generates favorable outcomes no longer seems controversial. Indeed, in light of the

numerous empirical works that have incorporated congruence indices or other measures of similarity to predict individual and organizational outcomes (Edwards, 1991; Edwards, 1996), psychosocial convergence between person and organization appears to be efficacious. Yet, the theoretical justification for the importance of the broad notion of “similarity” between two or more entities as a predictor in organizational behavior research has not always been stated clearly and emphatically. While empirical studies involving indices of fit, match, and congruence have proliferated (Edwards, 1991), the import of the similarity concept underlying them seems somewhat obscure. This deficiency suggests a very obvious question: What is the essential meaning or source of the similarity concept underpinning congruence indices?

A. Situationism, Personology, Interactionalism, and the Development of the Attraction-Selection-Attrition Paradigm

Until the mid-1960s, the divergence between personality theorists—who attributed behavior to an individual’s personality traits—and situationists—who explained behavior as a function of environmental conditions and adaptation to them—obfuscated the source of P-E similarity (Schneider, 1983). That is, under the personologist view, it

appears that any matching process would be consummated solely through the traits of the individual; the appropriate mix of personal characteristics would facilitate an acceptable match between person and passive organization. In contrast, the situationists' position insisted that the conditions of the organizational situation would mitigate individual traits, enabling an implicit adaptation of the person to the organization. Note, however, that the situationists' position was methodologically suspect due to their reliance on laboratory experiments in which subjects were placed in "demand" situations, compelling them to behave in prescribed ways without regard for individual differences (Schneider, 1983). Overall, the effect of this scientific impasse was to constrain P-E matching to mutually exclusive processes: (1) congruence between person and organization occurring through the **choice** of the individual as influenced by personal characteristics; or (2) person-environment congruence occurring only because organizational demands nullified the behavioral effects of individual differences.

Interactional psychologists subsequently provided a superior theory of organizational behavior relative to the person-environment interface. Bowers (1973) states the interactionist perspective succinctly:

[B]oth the trait and the situational positions are inaccurate and misleading [However], a position stressing the interaction of the person and the situation is both conceptually satisfying and empirically warranted (p. 307) [S]ituations are as much a function of the person as the person's behavior is a function of the situation (p. 327).

This conceptual nexus of an individual's traits and the organization's constraints have provided a more holistic foundation for analyzing the person-environment interaction; moreover, interactionism facilitated the identification of the structural process which revealed similarity between entities as an important predictor of organizational behavior.

Schneider (1983) has provided an interactionist basis for explaining the utility of congruence indices effusing from the process of similarity and its sources. Schneider (1983) first resolved the tension between internal-external causation of organizational behavior—the primary locus of control issue—by stating that behavior is **coherent** (Magnusson and Endler, 1977), or uniquely lawful and predictable for each individual across changing situations. This predictability occurs because humans are “generally proactive perceivers who, through their perceptions and cognitions, actively structure the external world,” (Schneider, 1983, p. 6). Most importantly, the contention that the

individual in the P-E interaction actively perceives and then makes choices underscores a primary source of similarity-attraction: individuals **self-select** into settings they fit and out of settings that are not suitable (Magnusson and Endler, 1977). Thus, similarity emerges as both a fundamental organizational process and a defining organizational characteristic because people, predicated on the processing of information through cognitive schema, choose environments that are attractive (Byrne, 1971) and compatible with their own psychosocial tendencies:

The situations that an individual encounters are not a random selection of all possible situations. Many of the situations in which we participate are chosen by ourselves (selected situations) but some seem to be imposed on us (required situations) The result of this process of selection of situations that one encounters is that each individual appears in a restricted set of situations and these of types of situations are a function of and have a relevance for the person concerned (Magnusson and Endler, 1977, p. 20).

These themes were ultimately captured in Schneider's (1983) attraction-selection-attrition (ASA) paradigm that effectively informs the foundation of perceived psychological similarity. The tenets of Schneider's (1983) attraction-selection-attrition model include:

- (1) People are attracted to organizations whose members appear similar to themselves in terms of psychological variables, i.e.

“personality.” They then select themselves into situations based on the their general fit to the situation.

(2) Organizations seek individuals with attributes similar to the incumbents’ because similarity is believed conducive to success; hence, successful incumbent members are attracted to prospective members perceived to be similar to themselves. After joining the organization, tenured employees and newcomers interact and the attraction effect continues to assimilate similarly perceived employees into the organization. Ultimately, poor matches lead to the voluntary or forced departure of the dissimilar individual from the organization.

(3) The process of self-selection results in relatively homogeneous settings, yielding people interacting with relatively **similar** people, and defining workplaces over time.

In short, through the psychological phenomenon of self-selection is generated person-environment similarity, which theoretically validates the application of derivative congruence, fit, and matching constructs in empirical research.

The social psychological model of interpersonal judgment proposed earlier by Byrne (1971) can be integrated with Schneider’s (1983) ASA model to amplify the self-selection process driving similarity in organizations. Byrne identified four categories of variables that effect interpersonal attraction; indeed, these process variables are fueled by self-selection and help clarify the channels that produce similarity. First,

Byrne describes **propinquity** variables as those that involve the physical and functional proximity between individuals; their relevance is based on the assumption that continued interaction occurring because of close physical or functional contact will influence attraction. Second, Byrne proposes that an individual's **need for affiliation** will affect interpersonal attraction if the opportunity for interaction exists. Third, **overt stimulus characteristics**, captured in the appropriate variables, refers to the observable attributes of the individual—such as physical attractiveness—which tend to elicit positive or negative responses from others. Finally, Byrne suggests the most influential class of variables, those that describe whether or not the elements of the relationship are **perceived** as favorable, unfavorable or neutral. In short, implicit in each instance is the supposition that interpersonal attraction becomes a function of interpersonal similarity whether based on the rewarding experiences derived from perceived interpersonal sameness in physical or personality characteristics or the tension produced through regular contact with “abrasively different” people.

Thus, the pathways through which individuals self-select into or out of interpersonal interactions, and ultimately organizations, are

prescribed by the physical/functional proximity of individuals, individual need for affiliation through interpersonal interaction, the overt attractiveness of relevant others, and the strength of perceptual rewards or punishments. From an interactionist standpoint, perceptual attributions regarding the attractiveness of the environment, i.e. organization, is the paramount process in Byrne's (1971) interpersonal judgment scheme because it promotes a conceptualization of organizational behavior as being determined proactively by individuals perceiving situations into which they select or remove themselves.

B. An Alternative View: Organizational and Relational Demography

An alternative analytical framework for assessing person-environment similarity and dissimilarity, and their outcomes within the organization, is provided by Pfeffer (1983). In essence, Pfeffer proposes that the demographic profile of an organization—which he terms “organizational demography”—is a superior model of interpersonal and intergroup dynamics, and hence presents a more cogent view of the similarity effect generally found in organizations. The myriad other “variables, theories, hypotheses, and conceptual schemes . . . explaining

organizational phenomena” have served only to overcrowd the research efforts in organizational behavior, in his words (Pfeffer, 1983, p. 302). Specifically, Pfeffer disparages the use of unobservable constructs in organizational research because they require the compliance and understanding of the subjects surveyed, yielding constructs that have been difficult to reliably measure and conceptually validate, as well as explaining only small amounts of variance in the dependent measures. His resolving proposition is that organizations be evaluated in terms of the **distributions** of observable characteristics of their employees—such as age, sex, education, length of service, race, and so forth. Furthermore, he asserts that the relative proportion of each cohort in an organization structures the form and nature of social interaction and group processes that occur. Pfeffer concludes (1983):

It is in this [relational] sense that demographic distributions have a theoretical and empirical reality which is distinct from the aggregation of responses of the individual members that might be predicted on the basis of some demographic attribute defined at the individual level of analysis (p. 304).

Overall, Pfeffer views demographic distributions within organizations as causal variables that can be incorporated more parsimoniously in models of organizational behavior. This approach clearly neglects the lower

levels of intervening variables and their processes. Indeed, as Pfeffer (1983) contends:

[A]s soon as one says that it is necessary to understand the intervening constructs or processes, one inevitably embarks on an infinite regress of reductionism from which there is no logical escape (p. 352).

Pfeffer's (1983) dismissal of unobservable psychosocial processes in organizations, however, produces some explanatory vacuity with respect to the source and effect of P-E similarity. While Pfeffer advances four factors that can influence the distribution of various demographics within organizations—employment growth rate, technology utilized, personnel policies, and extent of unionization—the process through which each of these variables operates on behavior seems to be predicated wholly on external, subsuming forces pressuring the individual. He completely ignores or discounts the internal needs/desires of the individual, e.g. interpersonal attraction, self-selection. The model's ambivalence, however, does not functionally attenuate the effect of unobservable psychological processes on individual or organizational outcomes. That is, the similarity-attraction effect between individual and organization, and the emergent process of self-selection, are not likely to

evaporate completely in response to changes in the unemployment rate, changes in technology, personnel policy, unionization, or other extraneous stimuli. Rather, the psychological variables neglected by Pfeffer should continue to play an essential role in causal explanation because the profile of demographic distributions within an organization primarily *describes* organizational cohort makeup.

In fact, recent empirical work extending Pfeffer's (1983) model continues to rely on intervening processes to explain the outcomes generated by demographic distributions. For example, Tsui and O'Reilly (1989), explore the effects of the demographic composition of employee-supervisor dyads predicated on the acceptance of the unobservable processes at issue here:

[W]e propose that knowing the comparative similarity or dissimilarity in given demographic attributes of a superior and a subordinate or of the members of an interacting work team may provide additional information about the members' characteristic attitudes and behaviors and, more important, insight into the processes through which demography affects job outcomes. So, what are the mechanisms through which relational demography may affect outcomes such as job attitudes, turnover, and performance? It appears that the cause of relational demographic effects may be a combination of a high level of attraction based similarity in attitudes, values, and experiences and strong communication among the interacting members of a team or dyad (p. 403).

In addition, Jackson et al. (1992), while seeking to demonstrate the complementarity of attraction-selection (Byrne, 1971; Schneider, 1983) and organizational demography, relies on the findings of previous sociological and marketing studies which have:

both shown that differences in people's attitudes and values are reliably associated with differences in their standing on demographic characteristics such as [age, tenure, sex, race, socioeconomic background, and religion]. Given this evidence, the similarity effect provides a rationale for how and why demographic compositions of organizations are likely to be related to organizational phenomena (Jackson et al., 1992, p. 676).

Again, the empirical research is not successful in deriving causal explanations from organizational demographic distributions apart from the fundamental concept of interpersonal attraction and self-selection to illuminate the tendency to dyadic, group or organizational similarity. In this respect, the Jackson et al. (1992) research simply analogizes Pfeffer's (1983) original efforts: describe demographic profiles at levels higher than the individual, and then, draw broad causal and effect inferences regarding the meaning of similarity and dissimilarity. While such an approach may prove useful for interpreting group composition and behavior or organizational trends, and may enhance variance explained in empirical work, neglecting the attraction-selection process will inhibit the

understanding of similarity, attraction, and self-selection mechanisms effecting changes at all organizational levels.

Finally, the notion that individuals engage in self-categorization generated through intrapersonal evaluation and self-imaging to establish their psychosocial membership in multiple groups is expressed in Tsui, Elan, and O'Reilly's (1992) work. Such introspecting does not damage the integrity of interpersonal attraction and self-selection. Indeed, though self-categorization does not depend on interpersonal interaction as does the attraction and selection of the ASA model (Tsui, Elan and O'Reilly, 1992; Schneider, 1983 and 1995), the primary mechanism in self-categorization theory implicitly seems to be the same as that of ASA: attraction to the same dyad or group effusing from perceived similarity, irrespective of interpersonal contact. In fact, such psychological group attachment complements individual attraction based on interpersonal action. In either case, the result is the establishment of organizational relationships where similar individuals, mutually attracted, self-select into appropriate person-organization situations.

C. Conclusion

The cornerstone of P-E congruence research is thus clarified as the inherent individual, group and organizational predisposition to evolve homogeneity. Importantly, similarity emerges because individuals are attracted to similarly categorized others and subsequently, self-select into congruent environments or remove themselves—or are removed—from environments diverging from their needs and desires. While Pfeffer's (1983) model of organizational demography pursues an understanding of demographic distributions in organizations by exploring the outcomes that result from these varying sets of personal characteristics, this level of analysis cannot capture the deeper attraction process driving the observed homogeneous outcomes. Nor can it accommodate the functional imperative for organizational—and sub-organizational—social assimilation. Hence, the theory and its empirical research progeny have not altered the importance of Schneider's (1983) ASA process in understanding the tendency to person-organization similarity.

III. An Analysis of Congruence in Organizational Research

A. Types of Person-Environment (P-E) Fit Models.

The abundance of P-E fit models developed by organizational researchers to analyze work behaviors and outcomes has culminated in a diversity of related, but theoretically distinct constructs and processes (Edwards, 1991). Edwards (1991) reports that the domain of congruence analysis between person and environment is quite broad and includes five differentiated categories of studies assessing:

- 1) person-job fit (Kulik, Oldham, and Hackman, 1987);
- 2) the fit between individual differences (Tsui and O'Reilly, 1989);
- 3) the matching of values (Meglino, Ravlin, and Adkins, 1989);
- 4) interpersonal agreement (Graen and Schiemann, 1978); and
- 5) social comparison processes (Oldham et al. 1986).

Moreover, examining just the person-job fit literature Edwards (1991) counts twelve alternative methods used to measure congruence between person and job, ranging from simple algebraic differences to euclidean distance scores to ratios to multiple indices. Also note that P-E fit approaches have been used to measure processes and outcomes involving selection (Schmidt, Hunter, Outerbridge and Goff, 1988), job satisfaction

(Locke, 1984), organizational entry and socialization (Premack and Wanous, 1985) and job stress (Edwards, 1996). Finally, broader theories of P-E fit include supplementary and complementary models (Muchinsky and Monahan, 1987), as well as supplies-needs and demands-abilities (Edwards, 1991; Kristof, 1996; Edwards, 1996) fit approaches. In short, there have been formulated multiple conceptualizations and operationalizations of P-E fit, subsumed under various theoretical perspectives; the result has been a somewhat convoluted stream of research leading to classificatory and interpretive difficulties. Critically, most of these frameworks and measurement approaches offer minimal enlightenment of dyadic interactions.

B. Person-Organization Fit: A Recent Integrative Model

Kristof (1996) has recently presented an integration of some of the conceptualization and measurement issues encountered in the P-E congruence domain of research. In her approach, Kristof examines only fit between persons and organizations (P-O fit), constraining and defining this domain as the compatibility between individuals and organizations. According to her taxonomy, vocational, group, and job congruence are

excluded from the purview of P-O fit. Then, she develops a model in which four of the broadest conceptualizations of fit are embedded.

The first conceptual differentiation distinguishes between *supplementary fit* and *complementary fit*. While supplementary fit suggests that individuals fit into some environmental context because they supplement, embellish, or possess characteristics which are similar to others in this environment (Muchinsky and Monahan, 1987), complementary fit occurs where the individual possesses some characteristics/skills which offset some deficiency in the organization and, alternatively, the organization fulfills some weakness or need of the individual (Muchinsky and Monahan, 1987). An essential difference between these conceptual fits turns on the definition of the environment. In supplementary fit the environment or organization is described by the individuals inhabiting it while in complementary fit the organization is defined apart from its inhabitants and instead emanates from its functional demands and requirements (Muchinsky and Monahan, 1987).

Kristof makes a second conceptual distinction between supplies-needs fit (S-V) and demands-abilities fit (D-A). The first version of fit involves the desires of the person—described in various terms as

psychological needs, goals, values, interests, and preferences (Edwards, 1991)—and the environmental supplies of the job available to satisfy those values (Cummings and Cooper, 1979; Edwards, 1996; Edwards, 1992; French et al. 1982; Schuler, 1980). The second version of fit concerns an alternative measure of congruence: the demands of the job and an employee's ability to fulfill these demands. Edwards (1991, p. 286) points out that "abilities have typically been described in terms of employee aptitudes . . . or proxies for aptitudes, such as experience . . . and education . . . though they are occasionally inferred from structural job attributes, most notably job decision latitude." He also reports that job demands have been represented both quantitatively and qualitatively (French and Caplan, 1972), and have included requirements for adequate job performance (Rosman and Burke, 1980), and activities central to the receipt of valued outcomes (Harrison, 1985; McGrath, 1976). In short, where an employee's ability to fill job demands is insufficient or, alternatively, where an employee is significantly overqualified for the demands of his or her employment (Edwards, 1996), problems may arise, as evidenced in individual stress theory (Beehr and Bhagat, 1985; French, Caplan, and Harrison, 1982; McGrath, 1976), predicted performance

(Dunnette, 1976; Waldman and Spangler, 1989), and retention and promotion (Dawis and Lofquist, 1984).

Given that these distinctions have been discussed separately in the P-O literature, Kristof constructs an integration of them. Supplementary fit is described as the relationship between the fundamental characteristics of the individual—personality, values, goals, and attitudes—and those of the organization—culture/climate, values, norms, and goals. Hence, where the individual and the organization are congruent across these variables, supplementary fit has been achieved. Additionally, it has already been asserted that individuals and organizations can be described on the basis of what they supply and demand in the employment contract. Kristof (1996, p. 4) subsequently points out that “these demands and supplies are likely to be influenced by the underlying characteristics of both [the organization and the person].” Where the organization supplies various resources and opportunities for growth, and these meet the various employee-expected needs, supplies-needs fit (S-V) occurs; conversely, where organizations demand time, effort, commitment, experience, knowledge, skills and abilities from an employee, and the employee is able to fulfill these demands, demands-abilities fit has occurred. Thus,

supplementary and complementary fit, and S-V and D-A fit are integrated to provide a more holistic model of P-O fit that occurs when: 1) at least one entity, person or organization (or both), provides what the other needs, or 2) they share fundamental psychological characteristics, or 3) both.

Kristof subsequently provides evidence that her model is able to interpretively illuminate and subsume the empirical findings from three strains of P-O research. These are: organizational entry, job search, and job choice (Schneider, 1987; Schneider et al., 1995); individual and organizational socialization (Chatman, 1989); and long-term outcomes including turnover (Schneider, 1987), work attitudes (Dawis and Lofquist, 1984), pro-social behavior (O'Reilly and Chatman, 1986), work performance (Tziner, 1987), and organizational outcomes (Ostroff, 1993). Furthermore, Kristof presents cogent rationale for excluding three other types of P-E congruence topics from the analytic umbrella of her model. Person-vocation (P-V) fit theory, in Kristof's view, captures the needs and interests of the individual and attempts to match them with vocational supplies at the broadest level of the work environment—in Holland's theory (1985) people and occupations possess personalities including investigative, artistic, social, enterprising, and conventional personality

types. However, while P-V fit encompasses an individual's personality and that of some vocational environment, these are not necessarily relevant contributors to understanding the fit between the person and an organization because vocational environments and organizations are not coincident in their respective characteristics. Secondly, Kristof (1996) excludes person-group (P-G) fit from the coverage of her model because her review of the literature suggests that "sub-organizational units such as groups may have different norms and values than the organization in which they are contained" (p. 8); therefore, the "degree of fit between individual and group may differ radically from the fit between person and organization" (p. 8). Finally, person-job fit (P-J) departs from the P-O perspective since P-J fit presupposes the tasks the individual performs relative to the job demands, and does not presume any a priori fit with the organization. According to Kristof, while many job requirements will reflect characteristics of the organization, they are conceptually distinct elements of the work environment and should be considered separate entities from the organization.

Importantly, Kristof eschews any integration between her model and the critical relationship that exists in organizations between supervisor

and subordinate. She asserts that research on supervisor-subordinate fit has developed independently of other P-E research, and is thus subsumed primarily by the literature on the vertical dyadic linkage model (VDL) (Graen and Cashman, 1975; Graen and Schiemann, 1978; Liden and Graen, 1980; Pulakos and Wexley, 1983). While Kristof provides no further reasoning for this view, it can be inferred that supervisor-subordinate congruence, like person-vocation, person-group, and person-job fit theories, describes a relationship that is extant but conceptually distinct within the organization. This suggests that the supervisor-subordinate relation entails significant interactions that clash with or exceed the person-organization relationship, despite the potential for conceptual supplementary and/or complementary fit between the subordinate (person) and the supervisor (organization). In this analysis, therefore, it is essential to establish the conceptual underpinnings that elucidate the nexus of supervisor and subordinate relations within the organizational environment.

C. Conclusion

Clearly, the psychosocial processual importance of person and environment congruence is firmly entrenched in organizational research.

Effectively, Edwards' (1991; 1996) and Kristof's (1996) recent person-job and person-organization fit analyses have begun to carve a taxonomic structure of congruence relations from the convoluted mass of existing literature. Yet, it is puzzling that the totality of this work has not placed the supervisor-subordinate interaction into a P-E framework, given the nuclear criticality of this relationship within the organization. The next section will endeavor to properly situate the supervisor-subordinate dyad within the P-E context in light of relevant theory.

IV. Supervisor-Subordinate Fit: Examination of the Cornerstone of the Organization

A. The Dyadic Relationship Between Supervisor and Subordinate

The relationship between immediate supervisor and subordinate has functioned unequivocally as the most fundamental exchange relationship within organizations in industrial America. In effect, employees and their supervisors have been engaged in a symbiotic interface critical to the overall performance of the organization. That is, the employee has depended predominantly on his/her supervisor for formal and informal guidance, feedback, accurate performance appraisals, and multiple forms of support to perform effectively and achieve the desired levels of

extrinsic satisfaction and even self-actualization. Simultaneously, the supervisor has trusted subordinates to fulfill assigned tasks propitiously and efficiently, provide innovative suggestions, and assimilate themselves into their unit's and organization's social milieu. Barnard (1938) first described this supervisor-subordinate interpersonal process in terms of cooperation predicated on negotiation between the dyadic parties; he stressed the need for the dyad to achieve a balance between inducements from the supervisor and responsive contributions from the subordinate. Simon (1957) subsequently referred to the distinction between supervisor inducements and subordinate contributions, and their balance, as organizational equilibrium. Weick (1979) described this relationship as being based on "interacts," where the behavior of one person is contingent upon the behavior of another person. The supervisor-subordinate unit of analysis, using Weick's logic, functions through the reciprocal response pattern in which an action by one party evokes a response by the other party, which is then responded to by the first party such that a cycle of dyadic reciprocation emerges.

More recently, Graen and Scandura (1987) have confirmed this process as "dyadic organizing." They argue that in the unstructured task

domain of the organizational interface between subordinate and supervisor:

[U]nstructured tasks typically come quickly to the attention of the superior. When the superior seeks to enlist the collaboration of his or her members on such tasks the organizing process is activated. Unfortunately for the superior, collaboration with the superior on unstructured tasks is not part of all members' written job descriptions. Collaboration from a member or members of choice requires social exchanges as inducements from the superior. These exchanges of collaboration on unstructured tasks, with social exchanges as inducements, promote the emergence of superior-member dyad structures between the superior and some members but seldom all members (p. 176).

Importantly, much of this interplay between subordinate and supervisor is influenced through the perceptual atmosphere that these organizational participants create. That is, perceptual reality as defined from the separate perspectives of supervisor and subordinate rather than through any tangible, objective and mutually acceptable measure, produces the functional psychological environment in which organizational determinations such as performance appraisals, supervisor feedback, and discipline decisions are made.

B. Modeling the Supervisor-Subordinate Relationship: Role Episode Model, Vertical Dyad Linkage Model, and Dyadic Organizing

These generalizations emphasizing the salience of the supervisor-subordinate relationship are given substance in industrial/organizational and social psychological frameworks. Katz and Kahn's (1978) Role Episode Model (REM) provides a perceptual basis for analyzing the organizational vertical dyad. Specifying this theory to the work environment, the REM posits that the primary role-sender, i.e. supervisor in this case, communicates verbal and nonverbal cues regarding work-related attitudes to the role-receiver, i.e. the subordinate, who then responds to the transmitted roles. Because the subordinate's received roles are filtered through his/her perceptual lens, by definition the received role is a function of the subordinate's perceptions. The accuracy with which the supervisor's work attitudes and values are interpreted is a function of both the sensitivity of the receiver-subordinate and the consistency and clarity of the sender-supervisor, all of which contribute to interpersonal satisfaction (Wexley, Alexander, Greenawalt, and Couch, 1980). Clearly, the closer the fit between what the supervisor perceived to have sent and what the employee perceived to have been sent, the more

congruent the parties' interpersonal understanding will be on work-related issues such as autonomy, authority, and general work responsibilities. Notwithstanding exogenous variables and intervening processes, good perceptual fit will enhance future interpersonal communication. Indeed, Wexley et al. (1980) cited the REM dynamic as the causal process in their empirical test of the relationship between types of congruence, and job satisfaction and performance. They determined that the state of mutual congruence between supervisor and subordinate can be considered to be a form of accurate communication that is associated with feelings of interpersonal satisfaction and is brought about in much the same way that Katz and Kahn's REM links the sent-role and the received-role. Wexley et al. (1980) conclude their findings asserting:

[T]he congruent perception of another's attitudes is a rewarding experience. Seeing others as they see themselves allows one to understand better their actions and to predict their future behaviors. This perceptual congruence is particularly important in manager-subordinate dyads within formal organizations because managers and subordinates serve as important sources of motive attainment for one another (p. 327).

Leadership theory researchers (Graen and Cashman, 1975; Graen and Schiemann, 1978; Liden and Graen, 1980) have narrowed their examination of role sets to examine vertical interactions, i.e. subordinates

and superiors. Specifically, they have analyzed the difference in the quality of the relationship between a supervisor and his/her subordinate(s) in the vertical dyad linkage model (VDL) of leader-member agreement. In this model, the basic hypothesis postulates that “the agreement between a leader and a [dyad] member regarding the meaning of certain mutually experienced events and situations will covary with the quality of their dyadic interdependence” (Graen and Schieman, 1978). Specifically, dyads of superior interdependency quality will exhibit greater agreement than dyads with inferior quality interdependencies. The quality differentiation among supervisor-subordinate dyads is generated through the supervisor’s evaluation of subordinates’ individual capabilities and motivation, as Liden and Graen (1980) describe:

[C]ertain subordinates [are] chosen because of (a) competence and skill, (b) extent to which they can be trusted (especially when not being watched by the supervisor), and (c) motivation to assume greater responsibility within the unit are given preferential treatment by the leader. These selected subordinates (in-group members) make contributions that go beyond their formal job duties and take on responsibility for the completion of tasks that are most critical to the success of the unit. In return, they receive greater attention, support, and sensitivity from their supervisors. Subordinates who are not chosen by the supervisor (out-group members) perform the more routine, mundane tasks of the unit and experience a more formal exchange with the supervisor. In addition, a group falling between these two extreme types of leader-

member exchange (the middle group) has been identified in more recent research by (Graen and Cashman, 1975).

It also essential to note that the subordinate classification process employed by superiors appears to depend on prompt, perceptually obtained data in the VDL model. Graen and Scandura (1987) reiterate the Dansereau et al. (1975) findings that supervisors' perceptions and subsequent classifications regarding subordinate's abilities and motivation levels are established within the first month of the dyadic relationship and remained stable across the nine month research period. In addition, Graen, Orris and Johnson (1973) found that supervisors imposed a self-fulfilling prophecy on newcomer employees. Because the supervisors believed that they could predict which employees would be successful, from the inception of the 16 week study they treated those employees expected to fail with "benign neglect" while investing more extensively in desirable employees. The result was that the neglected group experienced a much higher turnover rate than the preferred group of subordinates on the basis of the perceptions of supervisors.

Empirical examinations of the VDL have generally verified the model's primary supposition that supervisor-subordinate dyads of higher

quality engender interpersonal agreement. For example, Graen and Schiemann (1978) explored the extent of dyadic agreement regarding the subordinate's perceived job problems and the extent of dyadic agreement across a set of perceptual judgments for dyads of low quality (25%), medium quality (50%) and high quality (25%). The authors analyzed 109 dyads through "pattern agreement" methodology in which leader and member scores for each distinct dyad were correlated for 53 items; this was repeated three times at three-month intervals. The results indicated that across the three time periods, the leader-member exchange groups remained stable while the level of agreement between subordinate and supervisor was significantly higher for the in-group and the middle-group than the out-group. Unfortunately, the researchers did not decompose the agreement and judgment items so that more precise relationships could not be illuminated. As well, Liden and Graen (1980) identified three distinct leader-member exchange groups—in, middle, and out quality—which remained stable across three time periods. Critically, the authors discovered that structural variables including organizational status—job title, tenure by department, position, and span of control—indicated no differences among exchange groups. For demographic variables such as

age, race, sex, number of dependents, and education, differences among exchange groups were found only for the life cycle issues, i.e. the ages of children. In other words, no underlying structural or personal characteristics' dynamics accounted for leader-member exchange groups. Thus, this finding suggests that the dyadic classifications depended on the perceptual determinations made by supervisors in assessing subordinates. However, Liden and Graen generally found that agreement between subordinates and supervisors regarding more attention, support and interpersonal sensitivity to in-groups/middle-groups was not consistent between leader-members or between higher and lower quality exchange groups.

Despite the empirical support for the VDL, its utility for understanding the supervisor-subordinate interaction is limited because the model presupposes a unilateral perceptual process or reference. In spite of the involvement of two parties in the relationship, it is the leader who primarily determines the quality of the interdependency while the subordinate more passively endures this decision. This scenario neglects latent imperfections and biases in the supervisor's perceptual schematic processing and the reciprocation of behavioral input which the employee

provides the dyad over time. Indeed, the findings of stability in exchange groups by Graen and associates across six-month time horizons suggest that subordinates, once perceived to belong to a particular level of interdependency, have difficulty influencing this perception. Consequently, the VDL permits the arbitrary or pernicious relegation of the subordinate to low quality dyads where the supervisor misjudges the subordinate's motivations or abilities, or penalizes others perceived as dissimilar.

The earlier recursive limitations of the VDL model have been conceptually remedied in Graen and Scandura's (1987) Dyadic Organizing Model (DOM). The researchers propose three stages that culminate in a routinized work relationship between subordinate and superior. The *role-taking* phase encompasses a sampling phase wherein the superior attempts to discover the relevant talents and motivations of the subordinate through iterative testing sequences. The superior initiates a sent role and communicates it with the subordinate such that the subordinate receives the role expectation and whatever noise was added in transmission. The subordinate responds to the received role and the

superior evaluates this emergent response. Hence, the superior gathers information about the subordinate's capabilities and motivation.

Upon completion of this phase, which varies in length, the *role-making* phase develops and the superior and subordinate “evolve how each will behave in various problematic situations and begin to define the nature of their dyadic relationship” (p. 181). Because a set of understandings governing appropriate dyadic transactions is developed, the superior exchanges discretionary and subordinate-valued resources—information, influence, task enrichment, latitude, support, and attention—for subordinate contributions.

Last, *role-routinization* occurs where the behaviors of dyadic members become interlocked, stable, and predictable from continuing collaboration on unstructured tasks. Of critical import, the role emergence process and the development of quality-dyad gradations cannot occur unless several boundary conditions exist. These are as follows: 1) the superior must possess adequate latitude in task assignment and a need to exercise it; 2) the superior must have reasonably attractive positional and personal power resources and the insight to employ them; and 3) some subordinates must possess job growth potential and the motivation to

accept challenges beyond their job descriptions. The concurrence of these conditions is essential for dyadic organizing because the development of stable, intuitively driven, efficient supervisor-subordinate relationships cannot develop without adequate incentives and sufficient employee potential. Otherwise, dyadic interaction will not transcend the role-taking stage and the supervisor will be apprehensive about entrusting difficult, unstructured tasks to incompetent subordinates.

Again, it is essential to point out that this reciprocation-based version of the VDL devolves to perceptual processes, although from both supervisor and subordinate sources. However, Tsui, Xin, and Egan (1994) propose that the classification process in the VDL model is derived from two perceptual mechanisms. First, early expectations of both supervisor and subordinate(s) are dramatically influenced by the initial affect that develops between two individuals to such an extent that subsequent information search, evaluation and integration are used to confirm rather than disconfirm earlier affective impressions. Secondly, cognitively based stereotypes about dissimilar others—emanating from self-categorization and attachment to social identity groups—afflict the vertical dyad as both supervisor and subordinates perceive the observable traits of the other and

make stereotypic attributions. In short, both processes generate premature classifications by both supervisor and subordinate that will influence the quality of dyadic interdependency with a predictable permanency.

C. Conclusion

In short, compelling theoretical groundwork has been provided to establish an ontological niche for supervisor-subordinate dyads under the rubric of P-E congruence. Role Episode theory, as integrated with Vertical Dyad Linkage propositions, has culminated in the Dyadic Organizing Model to establish the dyad as a pivotal dynamic organizational structure, characterized by psychosocial mechanisms and processes that give practical meaning to everyday internal organizational functioning. Moreover, the potency of dyads for individual, unit or organizational effectiveness may be theoretically supportable through either affective or cognitive psychological channels (Tsui et al. 1994) or perhaps both. Importantly, the next section will seek to specify some of these psychosocial subordinate and supervisor dyadic congruence mechanisms.

V. Supervisor-Subordinate Dyads and the Emergence of Dyadic Similarity

A. Forms of Supervisor-Subordinate Similarity

The previous conceptual analysis of the supervisor-subordinate dyad models suggests three essential components in the development of the vertical dyadic relationship. First, as distilled from the VDL framework (Graen and Scandura, 1987), the exchange relationship between leader and member—in which the superior offers valued resources as inducements in return for important subordinate contributions—comprises the pivotal socioeconomic quid pro quo process in the dyad and the organization. This exchange dynamic of the dyad, regardless of interpersonal quality or economic effectiveness, is here taken as ubiquitous across organizations. Second, dyadic organizing is structured virtually from its inception by the reciprocal perceptual forces of interacting supervisor and subordinate such that perceptual understanding, i.e. perceptual congruence, is expected to enhance the quality of the dyadic interdependency and entrench the inducement-contribution dynamic over time. This is the case whether considering early dyadic interactions, in which differing leadership styles have not yet

generated climate perceptions, or whether considering entrenched relationships in which high-quality dyads show greater consensus on climate perceptions and greater agreement with their supervisors' climate perceptions (Kozlowski and Doherty, 1989). Third, cognitive stereotyping with its genesis in observable and/or immutable similarities and differences between dyad members influences their categorizations of each other; the stereotyping is derived from information about typical traits and behaviors of people identified with a particular cohort group (Tsui, Xin and Egan, 1994). In other words, demographic similarities and differences are believed by Tsui et al. (1994) to influence the dyadic relationship, again from its inception through the growth and routinization, stultification, or demise of the dyad.

Cumulatively, these findings suggest that over time—generally a very short period of time—evolved dyads of higher quality and success are characterized by psychologically and demographically similar subordinates and supervisor. Indeed, Turban and Jones (1988) have posited three distinct types of supervisor-subordinate similarity that can account for the homogeneity expected in effective dyads. The researchers

have designated these: 1) perceived similarity; 2) perceptual similarity; and 3) actual similarity.

(1) Perceived Similarity. Durban and Jones (1988) define *perceived similarity* as the set of individually distinct perceptions regarding how similar the supervisor and subordinate are to each other. That is, where either subordinate or supervisor or both perceive the other's work attitudes, personality, values, and other relevant immutable personal characteristics to be similar, this evaluation confirms a perceived similarity. According to Turban and Jones (1988), this form of dyadic similarity is derived from Byrne's (1971) interpersonal attraction paradigm and the consistent finding that job interviewers have favorably evaluated applicants with perceived similar attitudes (Golightly, Huffman, and Byrne, 1972), biographical similarity (Wexley and Nemeroff, 1974; Rand and Wexley, 1975), and other variables.

Empirically, Pulakos and Wexley (1983) analyzed two of Byrne's (1971) four channels of attraction to assess the link between dyadic congruence and the performance appraisal process. These authors operationalized measures of *overall perceived similarity* for supervisors and subordinates—predicated on Byrne's perceived-similarity attraction—

as well as sex differences—Byrne’s proposed overt stimulus characteristics. After a univariate breakdown of MANOVA results, they discovered that subordinates who viewed themselves as similar to their managers rated their superiors uniformly high on support and work facilitation regardless of the level of the manager’s perceived similarity toward the subordinate. Moreover, a perception of dyadic dissimilarity by both subordinates and managers resulted in considerably lower performance ratings of managers. With respect to the supervisors’ ratings of subordinates across performance, conformance, dependability, personal adjustment and general satisfaction, perceived similarity within the dyad produced higher appraisals. In view of these results, the authors (Pulakos and Wexley, 1983) conclude:

It is interesting to point out that managers continue to provide support and work facilitation as long as at least one individual within the manager-subordinate dyad perceives similarity. Presumably, the VDL remains fairly high when the manager, the subordinate, or both parties believe that there is some degree of similarity between them.

Recently, researchers have analyzed the dyadic fit of work values and posited that similarity in these values as perceived by supervisors and their subordinates is an important source of individual outcomes (Meglino,

Ravlin, and Akins, 1992). Because behavior is influenced by the effects of more than one value, it is essential to conceive of “value systems,” defined as *an enduring organization of beliefs concerning preferable modes of conduct or end-states of existence along a continuum of relative importance* (Rokeach, 1973). Weiss (1978) provided empirical results showing that value congruence in vertical dyads was related to supervisors’ consideration and ratings of supervisors’ success and competence. However, the study ignored characteristics of the subordinate and eschewed the use of traditional individual outcome measures. More recently, Meglino, Ravlin and Adkins (1989) have theorized that supervisors and subordinates possessing the same work values—which is believed to demonstrate a sharing of facets of cognitive processing—fosters comparable methods of classifying and interpreting organizational-environmental events, and a common system of communication. Because such convergence reduces uncertainty, stimulus overload, role ambiguity and other features of work interactions, coordination, job satisfaction and organizational commitment are enhanced. Their empirical findings revealed a significant and positive work-value congruence relationship between individual supervisors and their subordinates with respect to

employees' job satisfaction and commitment. Further, Meglino et al. (1989) determined that subordinates' values did not match an aggregated measure of multiple supervisors' values—a measure of organizational culture—but showed strong value congruence relationships only with their respective superiors. Subsequent research by Meglino, Ravlin and Adkins (1991) has extended beyond the objective dyadic relationship and examined subordinates' work values congruence with prospective leaders. Using one sample of banking executives/MBA students, and a second sample of undergraduate management students, the authors found that work values congruence between both groups and a prospective supervisor possessing a balanced set of work values was associated with greater anticipated satisfaction. Moreover, higher work value congruence between the executive/MBA subjects and an achievement-oriented leader also led to greater anticipated satisfaction. The authors attributed the failure to link the undergraduate sample's work value congruence with a strongly achievement-oriented leader to higher anticipated satisfaction as a result of limited range of variance in anticipated satisfaction. This was believed the result of the inexperience of the undergraduates with this style of leadership; hence, dyadic experience with different kinds of

leadership was hypothesized as a moderator of the value congruence/satisfaction relationship. In conclusion, work value congruence has been empirically associated with enhanced job satisfaction, anticipated satisfaction with leadership, and organizational/dyadic commitment.

(2) Perceptual Congruence. Turban and Jones (1988) report that the second form of supervisor-subordinate dyadic similarity reflects a similarity of *perceptions* held by the parties regarding the demands and characteristics of the work environment. Three separate measures of perceptual congruence have been devised (Wexley et al. 1980) to operationalize this construct. *Subordinate perceptual congruence* (SPC) refers to the difference between the subordinate's description of the manager and the manager's self-description. *Manager perceptual congruence* (MPC) measures the difference between the manager's description of the subordinate and the subordinate's self-description. *Actual perceptual congruence* (APC dyads) is defined as the difference between the parties' distinct self-descriptions. The definitional form of perceptual congruence employed in empirical work primarily depends on

the research issues to be studied and the appropriate form of measurement required.

Empirical assessment of perceptual congruence initially explored actual perceptual congruence (APC) between subordinate and supervisor regarding performance appraisal of subordinates (Mieva, 1976; Ruda, 1970; Senger, 1971) and subordinates' job satisfaction (Huber, 1970). Results generally showed that improved congruence on perceptions facilitated enhanced individual outcomes. Several studies analyzing subordinates' perceptual congruence (SPC) indicated that subordinates who are more perceptually aware of superiors' work-related attitudes receive better performance evaluations (Golmieh, 1974; Greene, 1972; Labovitz, 1972) and are more satisfied with their superiors (Howard, 1968).

Wexley, Alexander, Greenawalt, and Couch (1980) first recognized the distinction of the three types of perceptual congruence and tested their respective viability. The authors collected perceptual data from supervisors and subordinates in 194 separate dyads. This data resulted in:

- 1) 12 semantic bipolar adjective scales for both parties regarding responsibility, loyalty, goals and planning, social values, personality,

belief in authority, and work assessed for self and dyad partner; 2) five measures of satisfaction for subordinates (extrinsic, intrinsic, general and work satisfaction and satisfaction with supervision); and 3) five measures of supervisor evaluation of subordinates' job performance (performance, conformance, dependability, personal adjustment, and general satisfaction, all taken from the Minnesota Satisfactoriness Scale). Using the generalized euclidean distance measure D to calculate perceptual congruence, Wexley et al. (1980) found a strong consistent relationship between subordinates conceptual congruence (SPC) and all five measures of satisfaction. As well, manager's perceptual congruence (MPC) measures were most highly associated with ratings of responsibility and loyalty for their subordinates. Then, the components of the perceptual congruence measures were examined with partial correlation analysis. The results indicated that SPC correlates significantly with job satisfaction independently of the subordinate's descriptions of their managers; however, the congruence construct continued to be significantly correlated with the satisfaction measures even after partialling out the independent effects of subordinates' perceptions of their supervisor. The managers' descriptions of subordinates' were found to be the major contributing

factor between MPC for responsibility and performance evaluations after partialling out the effects of subordinate's self-descriptions. Finally, actual perceptual congruence (APC) on social values was only marginally associated with performance, while APC on the concepts of responsibility and belief in authority were marginally related to job satisfaction. In short, this study determined that subordinates perceiving their supervisor's work-related attitudes as similar experience greater satisfaction with supervision; perhaps more importantly, it was shown that a supervisor evaluates the efforts of a subordinate more highly when the supervisor's perceptions of the subordinate's work-related attitudes are accurate.

Hatfield and Huseman (1982), as part of their research design, examined the relationship between manager perceptual congruence (MPC) in communication effectiveness and job satisfaction. The authors employed the euclidean distance D index to measure dyadic manager's perceptual congruence. Findings indicated that as managers' perceptions of subordinates' views on work coordination, participation and expression became more similar to those of subordinates, general and work satisfaction and satisfaction with supervision tended to increase for subordinates. Similarly, Kozlowski and Doherty (1989) in their

integration of leadership and climate, included a hypothesized manager's perceptual congruence (MPC) link between climate perceptions and in-group/out-group status. Operationalizing MPC as the euclidean distance D , they found that in-group members' perceptions of climate more closely agreed with those of their supervisor than did the D scores of out-group subordinates. Thus, this finding affirms that the "nature of interactions between leaders and their subordinates serves to mediate and structure organizational features, events, and processes" (Kozlowski and Doherty, 1989, p. 551).

Wexley and Pulakos (1983) investigated subordinates' perceptual congruence (SPC) and its relationship to performance appraisals of managers. In a sample of 286, subordinate's perceptual congruence was measured for the supervisor's work-attitudes of responsibility and loyalty, computed as the index D , with evaluations of managers' leadership performance measured as an aggregate of support, work facilitation, goal emphasis and interaction facilitation scales. Correlation analysis indicated that increased subordinate perceptual congruence regarding manager's responsibility and loyalty was strongly associated with higher ratings of supervisors. Separately partialling out the effect of both components of

the *D* index revealed that the subordinate's description of the manager's attitudes was independently associated with appraisal of the manager's leadership performance; nevertheless, significant congruence effects remained.

In sum, three types of perceptual congruence—subordinate perceptual congruence, manager perceptual congruence, and actual perceptual congruence—have been empirically associated with enhanced understanding and communication between dyad members and positive individual outcomes. The analogue to supervisor-subordinate perceptual congruence regarding the work environment is the homogenizing of the dyadic relationship, at least for the high quality dyads.

(3) Actual Similarity. The third form of supervisor-subordinate similarity proposed by Turban and Jones (1988) encompasses the *actual* or objectively determined similarities between dyad members. Turban and Jones classify dyadic similarities in personal attributes, characteristics or background as *actual similarity* if by some objective standard subordinate and supervisor can be judged the same, although the standard of objectivity is not clarified. Implicitly, it seems that actual similarity differs from perceived similarity and perceptual congruence primarily in

the conceptual measurement process applied. That is, whether measuring attitudes or more easily observed personal characteristics, operationalizing these constructs to assess actual similarity requires the objective judgments of the researcher rather than the perceptual judgments of the subjects. Importantly, characteristics that are immutable, observable, or reflect a degree of permanency are most easily evaluated for actual congruence, e.g. race, gender, education, tenure, socioeconomic status, etc.

Thus, the most cogent analyses of actual similarity involve comparison of similarity across demographic characteristics for subordinates and supervisors against various outcomes. The theoretical underpinning for postulating positive outcomes for dyad members similar in demographic characteristics, as suggested previously, derives from Pfeffer's (1983) notion of organizational demography. The seminal application and test of Pfeffer's theory comes from Tsui and O'Reilly's (1989) examination of relational demography in superior-subordinate dyads. These authors eschew the traditional method considering the independent effects of relevant demographic attributes on individual level outcomes and instead explore the effects of "comparative similarity or

dissimilarity in given demographic attributes of a superior and subordinate” (p. 403). In effect, they propose that the congruence relation of sets of demographics between dyad members generates an attraction effect based on similarity in attitudes, values and experiences (Byrne, 1971) and strong communication among the interacting members of a dyad. To operationalize demographic congruence, Tsui and O’Reilly (1989) squared the differences between subordinate and supervisor self-ratings on age, gender, education, race, company tenure, and job tenure. Dependent variables consisted of supervisory rating of subordinate performance and affect for subordinate, and subordinate’s ratings of role ambiguity and role conflict. Applying hierarchical regression, where block one contains subordinates’ demographics, block two contains supervisors’ demographics, and block three contains the squared difference scores, the authors found a significant change in R^2 when the difference score block was added for all four dependent variables. This indicated a demographic congruence effect for subordinates and supervisors beyond separate individual demographic effects. For the specific differences, mixed-gender dyads showed inferior subordinate performance and affect, and higher levels of role ambiguity and role conflict. Interestingly, female

subordinates with female superiors exhibited the most favorable outcomes, men with female superiors showed the most role ambiguity, and men and women with male supervisors showed little outcome difference. Racially mixed dyads, after further analysis, demonstrated that white subordinates received the highest affect ratings, but also showed the highest levels of role ambiguity and conflict. In contrast, black subordinates with white superiors experienced the lowest levels of role ambiguity and role conflict. In mixed-age dyads, subordinates older or younger than their superiors showed elevated role ambiguity. With respect to education, subordinates having less than superiors experienced lower role ambiguity and were liked better by supervisors. Finally, supervisors had greater affect toward employees with less job tenure than themselves, but these employees reported the highest levels of role ambiguity; as well, subordinates with more or less job tenure than their supervisors were rated lower in performance. Overall, these results generally support the authors' supposition that demographically similar dyads are related to more positive individual outcomes generated by some nonspecified processes of affective and communicative symbiosis.

It is important to recognize in the organizational/relational demography literature that hypothesized interpersonal relationships and empirical findings emphasize similarity-attraction theory while failing to overtly model the underlying psychological processes. Recent conceptualization of the processual elements involved in relational demography suggests that in addition to the affective psychological link, a cognitive stereotyping process may also separately lead to dyadic congruence and influence individual outcomes (Tsui, Xin, and Egan, 1994). This theorization is critical for the understanding of the etiology of dyadic congruence. It is the genesis of hypothesized multiple linkages between demographic congruence and employee performance, job satisfaction, commitment, and many other individual outcomes.

A last set of studies has related actual similarity to other similarity concepts or posited actual similarity as an intervening variable. Pulakos and Wexley (1983) examined the moderating effect of gender congruence and found an interaction between subordinate's gender and subordinate's perceived similarity to the supervisor. For subordinates perceiving themselves as similar to supervisors, the latter gave significantly higher dependability ratings to females; however, when subordinates reported

dissimilarity, both male and female subordinates received uniformly low ratings. In a related study, Wexley and Pulakos (1983) found moderating effects of dyadic gender composition for subordinate's perceptual congruence (SPC) regarding the subordinates' dependability. Increased SPC was related to higher ratings of subordinate responsibility only in same sex dyads. Wexley and Pulakos (1983) also tested the hypothesis that in dyads, one member will rate a gender-similar other member with greater confidence than a dissimilar dyad partner. Empirical findings did not support this proposition. The researchers found that female-subordinates' performance ratings of male supervisors showed significantly higher variance than for female supervisors. Also, female supervisors produced more variable ratings of performance for male than for female subordinates. Wexley and Pulakos (1983) conclude that because women have only recently entered management ranks, their expected roles from the point of view of female subordinates, and their supervisory expectations for female subordinates, are only nascently formed. This condition produced compressed ratings for female-female dyads due to the constraining forces of role uncertainty relative to males, whose work roles have been more clearly prescribed over time.

B. Conclusion.

In view of the empirical findings reported above, the three types of supervisor-subordinate similarity presented by Turban and Jones (1988) have been associated with or predictive of individual outcomes and appear to be conceptually distinct. In fact, these researchers tested the explanatory power of each form of dyadic congruence and found that the perceived similarity, perceptual congruence, and demographic similarity measures contributed differentially to the amount of variance explained in job satisfaction, performance and pay ratings. Hence, more than one similarity or congruence effect appears to exist. Moreover, the Turban and Jones study revealed that the mechanisms underlying congruence transcend simple similarity bias and clearer task perception. Their correlation of the similarity indices with subordinate personality characteristics, role demands, rewards, work climate and relationship with the supervisor determined that: 1) perceived similarity from either dyadic source is linked to increased clarity of role demands and a positive relationship with the supervisor; 2) greater perceptual congruence decreased subordinate role ambiguity, increased subordinate confidence and trust in the supervisor and the subordinate's view of supervisory

influence, improved the subordinate's perception of the frequency of formal rewards, and was positively related to subordinate self-esteem and professional involvement; and 3) actual similarity was not associated with the mechanisms tested.

Overall, empirical analyses of supervisor-subordinate congruence have not proven definitive with respect to the domain of variables proposed as dependent on the three forms of similarity. However, it is clear that similarity in perceptions, whether unidirectional or mutual, leads to improved individual outcomes including subordinates' work satisfaction, commitment, and higher performance ratings from superiors. Finally, while the mechanisms underlying perceptual similarity seem to involve the clarity of supervisor and subordinate role expectations and improved communication, the processes defining the effects of actual similarity remain nebulous. Whether actual dyadic similarity influences individual outcomes directly through cognitive stereotyping, indirectly as mediated through perceptual processes (perceptual congruence and/or perceived similarity), through both direct and indirect paths, or as a moderating force on perceptually based congruence has not yet been ascertained.

VI. Work-Family Integration: Child-Care Exigencies and the Supervisor-Subordinate Dyad

A. Introduction

While supervisor-subordinate perceptual congruence can be examined across a plethora of topics, it is asserted here that work-family conflict issues, and particularly child-care, are an ideal domain for testing empirical questions. Foremost, integrating work and family responsibilities continues to pose a ubiquitous concern to families with two working parents. As Steers and Rhodes (1978) point out, it is one of several primary causes of employees' inability to attend work as scheduled, an urgent employee problem given that recent no-fault absence policy demands attendance as a necessary condition for satisfactory performance (Moore et al., 1992). Moreover, the potentially pernicious spillover effects from child-care responsibilities have been associated with damaged employee work-attitudes, (Kossek, 1990; Kossek and Nichol, 1992), exacerbated work-stress (Kossek, 1990), and the intrusion of workplace anxieties into home and leisure life, all of which can be posited as performance attenuators. Indeed, the influence of supportive supervisors on such employee stressors is warranted, as it is expected that supportiveness at work can ameliorate some of this stress. Finally, the

child-care and organizational behavior interface has been minimally investigated. Hence, the area is desperately in need of empirical study.

B. The Effects of Recent Workforce Demographic Changes

The demographic changes in the workforce over the past three decades have profoundly modified the putative balance between work and nonwork domains for both males and females. Given that 54% of women are now in the labor force (U.S. Bureau of the Census, 1994) compared with just 38% in 1980, two-parent families now account for only 70% of all families raising one or more children under 18 (U.S. Bureau of the Census, 1994), and the labor force participation rate for wives with children under 18 and husbands present has risen from 44.9% to 67.5% for the years 1975 to 1993 (U.S. Bureau of the Census, 1994). It is clear that traditional approaches to child-rearing and family structures are inadequate to meet the demands of work-family integration. Indeed, in light of the substantial and growing spillover from family exigencies into the workplace (Bandura, 1986)—and the converse—organizations must be concerned with the links between child-care difficulties and increasing pressure on employee work performance, attendance-turnover, attitudes, motivation and mental health.

Critically, the organization's primary point of contact with employees' work-family integration issues is the immediate supervisor and

the interdependency that develops in the supervisor-subordinate dyad. It is the supervisor who on a daily basis is confronted with employees' child-care problems and crises, is compelled to initiate scheduling changes and otherwise accommodate employees' family needs, and who attempts to balance the emergent perceptions of employee cooperation and competence in subsequent performance evaluations. Yet, despite the fundamental importance of dyadic negotiation for and acceptance of viable, effective work-family accommodation, no direct research has emerged to inform child-care based problems. Thus, it is necessary to explore the mechanisms by which subordinates and supervisors evolve tenable approaches to ameliorating employees' child-care/work balancing difficulties.

C. Work-Family and Child-Care Theoretical Literature

With the exception of early theories of work-family segmentation (Lambert, 1990), the acknowledgment of conflict between work and family responsibilities is ubiquitous across theories of work-family integration and its problems. Indeed, work-family conflict has been formally recognized as “a form of interrole conflict in which the role pressures from the work and family domains are mutually incompatible in some respect” (Greenhaus and Beutell, 1985, p. 77) such that participation in one role is disturbed by participation in another role.

Role conflicts triggered by work-family tensions have been posited as time-based, strain-based, and behavior-based (Greenhaus and Beutell, 1985). While these forms of work-family conflict may be interconnected, they can be differentiated phenomenologically. That is, as DeMarr (1996) points out, time-based conflict is generated by clashes in time allocation between family needs and work responsibilities because a person cannot function at two locations simultaneously or if present, may be psychologically preoccupied with work-related matters. In addition, strain-based conflict appears when incompatible roles produce such strain that an individual is incapable of complying with the demands of one or both roles. Finally, behavior-based conflict develops when patterns of role behaviors become incompatible with expectations for behavior in a different role. These forms of work-family conflict reach the threshold of dysfunction when, as Demarr (1996) reiterates, work and family roles are highly salient to the individual and strong negative sanctions exist for failure to sufficiently fulfill role demands.

Another set of related frameworks has been proposed (Lambert, 1990) to elucidate work-family conflict by modeling the processes that link work and family life. These include: 1) *segmentation*, in which the exigencies from one domain or role do not affect the demands of another

role, e.g. work and family domains; 2) *compensation*, in which an individual dissatisfied with one role—work or family—seeks gratification through an alternative role—family or work; 3) *spillover*, where the positive and negative effects from both family and work domains spillover, directly or indirectly into the other; and 4) *accommodation*, in which the worker restricts his/her involvement in either the work or family domain in order to accommodate requirements in the other domain.

Finally, other models have been proffered that focus primarily on gender-based differences in ameliorating work-family conflict (Lambert, 1991; Gutek et al. 1991; Pleck, 1977). The gender role framework, in particular, postulates that perceived work-family conflict and the allocation of time between work and family are significantly influenced by gender.

DeMarr cogently summarizes this framework (1996):

The gender role framework for understanding work-family conflict posits that gender both directly influences perceived work-family conflict, and moderates the relationship between time spent in paid and family work, and perceived work-family conflict. Central to this framework are the traditional gender roles, with men being primarily focused on work and women focused primarily on family matters. The gender role framework holds that gender role expectations may distort the rational view such that the level of conflict men and women report will depart from the rational view in a manner consistent with gender role expectations. According to this view additional hours spent in one's own sex role domain . . . are perceived to be less of an imposition and create less conflict for the role holder than additional time spent in the other sex role domain.

Specifically, the gender role framework predicts that men will be more sensitive to the amount of time spent in family work, while women will be more sensitive to the amount of time spent in paid employment (p. 19).

Thus, this model predicts that with hours of paid employment held constant, men will experience greater family interference with work while women will experience greater work interference with family, outcomes which are the polar opposites of the predictions of the rational model (DeMarr, 1996). In fact, recent research recognizes that work-family conflict is a bidirectional phenomenon (Frone et al., 1992) and that the family-interference-with-work and work-interference-with-family constructs are conceptually and functionally distinct (DeMarr, 1996).

Importantly, this conceptual literature base does not clarify the linkages between the individual's work-family conflict and the organizational level to be tapped for intervention. Furthermore, while literature espousing the benefits of child-care assistance and the methods an organization may use to ameliorate work-family conflict is available, it is essentially anecdotal (Dilks, 1984; Hiatt, 1982; Trost, 1987; Verespej, 1988) and atheoretical (DeMarr, 1996). The consequence of these conditions is a paucity of theory to guide the modeling of the influence of the dyadic interdependency on work-family conflict. Therefore, because

the empirical literature investigates approaches to child-care regarding individual outcomes and their moderators, it will be assessed to inform this research.

D. Work-Family and Child-Care Empirical Literature.

Scientific research into the relationships between the use of different types of child-care and individual and organizational outcomes is not extensive. Overall, these studies have examined the linkages between on-site child-care and standard measures of outcomes such as performance, absenteeism, turnover, and commitment (Grover and Crooker, 1995).

The first noteworthy empirical piece is the Milkovich and Gomez (1976) evaluation of the influence of employer-sponsored child-care on employee absence, turnover, and performance in a mid-western firm. The authors determined that use of the center was related to reduction in absenteeism and turnover rates. However, they failed to find a significant link between on-site child-care and employee performance. As well, several other studies reported more ambiguous results regarding employer-sponsored day care and absence (see Youngblood and Chambers-Cook, 1974; Miller, 1984).

Kossek (1990) developed a three-stage ordinary least squares (OLS) model to test the proposed causal sequence linking structural/background

variables with the dependent measure “problems with child care.” A second causal flow was then tested between predicted problems, gender, and the dependent measure “attitudes towards work/family conflict.” Finally, a third path was examined between predicted attitudes, gender and the dependent variable “days of absence due to child-care demands.” This study is significant because it used multifaceted measures of household employment, dependent care profile, and familial care usage variables such that each of these constructs captured the configurations of demographic mixtures likely to be observed in a cross-section of employees. More importantly, this research demonstrated the explanatory power of demographic and work-family structural characteristics in assessing employees’ problems with child-care. The specific findings indicated that reliance on familial care was strongly related to increased problems with care while reliance on nonfamilial care led to a decrease in problems. As well, being female was associated with poor attitudes toward work-family integration while predicted problems with care was also negatively related to attitudes regarding child-care. Last, negative attitudes toward work due to child-care problems predicted higher absence for employees. Nevertheless, while this study implied that the employer as prospective implementing agent of a child-care system should fully explore the needs

of its workforce, it neglected the assessment of the supervisor-subordinate interface at which individual problems with child-care are first surfaced and potentially alleviated through dyadic negotiation.

Goff, Mount and Jamison (1990) also explored the relationship between employer-supported child-care, work-family conflict and absence behavior. These researchers presented a path model in which work-family conflict constituted an intervening variable between demographic, structural and attitudinal variables. Importantly, the model included employees' views of supervisory support as a variable in addition to use of on-site care, number of children under five years, availability of sick care, degree of primary responsibility for child-care, and satisfaction with care. The results of the Goff et al. (1990) analysis indicated that satisfaction with child-care arrangements and supervisory support were significant negative predictors of work-family conflict. However, they also found that supervisor support was associated with a higher rather than lower level of absence, contrary to their expectations. While these researchers attribute this finding to employees' reduced fear of penalization by a supportive supervisor, such a conclusion may well be spurious in view of the small size of the sample analyzed. Moreover, the authors could not distinguish the indirect effects of the specified paths given the manner in which they

split the cumulative sample into two subsamples. Since assessing the indirect effects of variables in a path model is one of the central reasons for applying this analytic method, the Goff et al. (1990) model added little to current knowledge of structural relations between child-care and absenteeism. As well, although the inclusion of employees' views of supervisor support highlighted this critical outlet for employees struggling with work-family integration, it provided only a unilateral assessment of the importance of dyadic interdependence as it relates to child-care issues.

Building on the work of Goff et al. (1990), Kossek and Nichol (1992) proposed and tested a recursive path model that assessed the influence of exogenous demographic, background, and perceptual variables on a set of child-care related outcomes. Specifically, the exogenous variables included gender, employee reliance on familial care for sick children, degree of supervisor support for child-care problems, total number of hours using on-site care, and total number of hours using other nonfamilial care. The endogenous variables were perceptually derived: perceptions of care arrangement problems, attitudes toward work-family management, supervisor perceptions of child-care related absence, and supervisor-provided performance rating. The findings of this study showed that where employees cannot depend on familial child-care assistance and

where off-site nonfamilial care is extensive, overall problems with child-care arrangements increase. Moreover, the variable “problems with care arrangements” was a strong significant negative predictor of attitudes toward managing work and child-care responsibilities. Finally, being female and lacking familial child-care assistance both led to elevated supervisory perceptions of child-care generated absenteeism, and then substantially lower performance evaluations. The salient linkage of interest, between use of on-site care and performance, was not found, nor did supervisor support of work-family integration add significant predictive power to the model. In short, these findings led Kossek and Nichol (1992, p. 502) to conclude that “child care benefits may be viewed as creating a favorable climate conducive to enabling good performance by alleviating problems and allowing employees to focus on their jobs.”

A broader analysis involving child-care and organizational policy was undertaken recently by Grover and Crooker (1995) in a large, national and randomly sampled employee population. In examining multiple family-responsive policies simultaneously, the authors explored the relationship between four predictors, including child-care assistance and child-care information, and two forms of organizational commitment. *Affective commitment* is an attitudinal attachment to the organization

generated by the organization's symbolic concern for the employee, e.g. supportive child-care policies. *Continuance commitment*, measured here as turnover intention, represents an attachment to the organization predicated on an employee's sunk investments in the organization, e.g. expectations of future use of child-care benefits. After controlling for a large set of demographics and covarying benefit options, Grover and Crooker found that providing child-care information to employees sharply reduced their intention to turnover. Also, while providing child-care assistance was not related to affective commitment, its interaction with number of young children was significant. In the context of the larger study, the authors therefore suggest that the availability of multiple family-responsive policies acts as a symbolic gesture of concern for employees and inspires loyalty and attachment, and reduces turnover. With respect to child-care measures, the latter interaction suggests that employees receiving the specific child-care benefit will develop greater affective commitment to the organization. In short, this study demonstrated that sets of family-friendly policies, including child-care benefit plans, can enhance employee commitment to the organization when considered concurrently, reflecting the employee decision-making process.

E. Conclusion.

Empirical findings in child-care analysis have established that on-site facilities ameliorate some work-family problems such as absenteeism and negative attitudes toward balancing work and home responsibilities. As well, no direct link between on-site care and improved performance has been discovered. More importantly, the literature reviewed provides little support for the explanatory power of dyadic congruence in perceptions, attitudes, or demographics regarding child-care issues, primarily because this critical relationship was not analyzed. The result is an egregious gap in the theoretical and analytical approaches to child-care study.

VII. A Synthesis of Dyadic Interdependency: Some Research Gaps

The breadth of the theoretical and empirical literature reviewed in this chapter demonstrates that multiple conceptual domains of research directly or indirectly inform the understanding of supervisor-subordinate dyadic interdependency and the development of congruence within the dyad. The cornerstone of congruence in the dyad, as has been asserted, is the general tendency for the individual to be attracted to similar others (Byrne, 1971), and to then self-select into organizational environments compatible with his or her psychological attributes (Schneider, 1983). Given a successful entrance, the individual either exceeds a lower threshold

of acceptability to the organization and its members through assimilation or exits the organization (Schneider, 1983). Importantly, the new employee simultaneously is initiated into a dyadic relationship with an immediate supervisor, in which the supervisor rapidly develops perceptual (Turban and Jones, 1988), i.e. affective and cognitive (Tsui, Egan and Xin, 1994), assessments of the subordinate. From these similarity dimensions, the subordinate may be judged as highly or at least moderately capable of providing requisite organizational contributions by the supervisor and thus enters into a relatively stable dyadic interdependency characterized by favorable supervisory inducements for high-quality performance (Graen and Scandura, 1987). Conversely, the subordinate may be perceived as substandard in aptitude and/or motivation and is thus predestined to a more formalized dyadic relationship with the supervisor in which communication is formalized and growth opportunities and overall support are minimal (Graen and Scandura, 1987). Further, the general effect of this set of dynamic processes is to generate, over time, a psychological and demographic homogeneity within the organization. First, Schneider (1983; 1987) has posited that the organizational tendency to retain those employees who are most attractive to—and attracted to—organizational incumbents predicated on psychic characteristics, e.g. attitudes, values,

biases, etc., ultimately leads to a tangible homogeneity in the internal workforce. Whether this psychological homogeneity is manifested in the latent elements of the organizational culture and/or at lower levels of climate, the consequence is the “squeezing out” of employees who do not satisfy some minimal threshold of similarity. A similarity-driven psychosocial milieu and process emerges. Second, Pfeffer (1983) and his adherents have proposed that a homogeneity in organizational demographic composition, analogous to Schneider’s psychosocial organizational monolith, arises as those employees dissimilar to incumbents in observable characteristics voluntarily or involuntarily exit the organization. In conclusion, organizations become staffed by workforces that are both psychologically and demographically similar in response to these “naturalistic” tendencies.

Critically, the process or processes by which perceptual congruence and demographic similarity influence supervisor-subordinate dyadic interaction have not yet been comprehensively adduced. In particular, some extant research suggests that dyadic congruence is primarily generated by perceptual mechanisms (Schneider, 1983; Hatfield and Huseman, 1982; Palukos and Wexley, 1983; Graen and Scandura, 1987) and thus requires the collection and operationalization of perceptual data.

This approach specifically legitimizes the formulation of dyadic congruence indices involving values and attitudes (Meglino et al. 1989), perceived similarity (Wexley et al., 1980), perceptual congruence (Wexley et al. 1980), and actual perceptual congruence (Turban Jones, 1988). Alternatively, other analysts have proposed a cognition-based pathway to similarity via stereotyping or actual similarity judgements (Tsui and O'Reilly, 1989; Tsui et al., 1994; Turban and Jones, 1988) in addition to perceptually-based explanations. Indeed, examining such demographic/background measures is relatively straightforward since many of the variables are directly observable, eschewing the need for the measurement, interpretation, and analysis of latent intervening constructs (Pfeffer, 1983).

Finally, neither theory nor empirical work in the child-care literature has incorporated supervisor-subordinate congruence as an influence in child-care related outcomes for employees. Only two studies (Goff, Mount and Jamison, 1990; Kossek and Nichol, 1992) have recognized the import of supervisor supportiveness in assuaging employees' difficulties with work-family conflict, and these merely examined subordinates' views without consideration of supervisory understanding of child-care problems. In short, it is the absence of supervisor-subordinate dyadic congruence

analysis as it can enhance the understanding of work-family integration that fuels this study.

CHAPTER THREE

THE CONCEPTUAL MODEL

I. Introduction

Chapter 3 will present the conceptual model of perceptual congruence as this set of constructs relates to actual and perceived similarity, and predicts individual level work outcomes. The model is contextualized in the VDL-Dyadic Organizing paradigmatic frameworks receptive to modeling supervisor-subordinate dyadic interactions. Section II-A introduces the chapter, while section II-B presents the general conceptual model. It encompasses a mediating structure, such that actual similarity is posited to influence outcomes only through perceptual congruence and perceived similarity, respectively. Section II-C develops the hypotheses for the main effects perceptual congruence constructs in the model. Section II-D develops the hypotheses for the main effects actual similarity variables in the model. Then, section II-E develops the hypotheses for the mediation networks in the model. Concluding observations are given at the termination of each section, and a final conclusion is present in section II-F.

II. Perceptual Congruence and Actual Similarity as Antecedents of Individual Outcomes in a Work-Family Integration Context

A. Introduction

The preceding chapter demonstrated the paucity of precise theoretical specification regarding the various forms of supervisor-subordinate dyadic congruence as they might influence the effective balancing of subordinates' child-care exigencies and ensuing individual outcomes. The dearth of child-care theory therefore portends the exploratory nature of the subsequent modeling and its dependence on a supportable and parsimonious synthesis of the extant, somewhat tangential theories and empiricism. In effect, these efforts to construct a testable, albeit nascent model are thus fueled by the specific research interest: exploring the linkages between several forms of dyadic congruence themselves as well as their influences on individual outcomes, all which effuse from subordinates' child-care problems. This renders the conceptual framework less than perfectly generalizable, which is to be expected in exploratory research. In addition, a second driving consideration of this research is to affirm Edwards' (1991; 1993a) polynomial regression technique and simultaneous equation estimation relative to conventional difference scoring in a unique empirical setting.

Hence, both theory and applied method are without precedent in the work-family domain of organizational research. Finally, it is important to point out that the model posited will not be analyzed in its entirety. Perceptual congruence is the construct of interest, as it relates to actual similarity, and as the latter two relate to child-care contingencies. Elements of the model that are not tested are nevertheless included for their heuristic value.

B. An Overview of Predictive Networks and Theoretical Context

In general, the model presented in Figure 1 seeks to capture the salient structural processes by which supervisor-subordinate similarity or congruence effect various individual subordinate outcomes. To tap the empirical similarity domains, it incorporates the three types of congruence presented by Turban and Jones (1988)—perceived similarity, perceptual congruence,¹ and actual similarity—as antecedents of individual outcomes relating to child-care issues. For the purposes of this analysis, perceptual congruence is embedded within the context of the leader-member exchange paradigm (LMX; Dansereau, Graen and Haga, 1975; Graen and

¹ Note: remember that perceptual congruence can be conceptualized and operationalized as subordinate perceptual congruence, manager perceptual congruence and actual perceptual congruence.

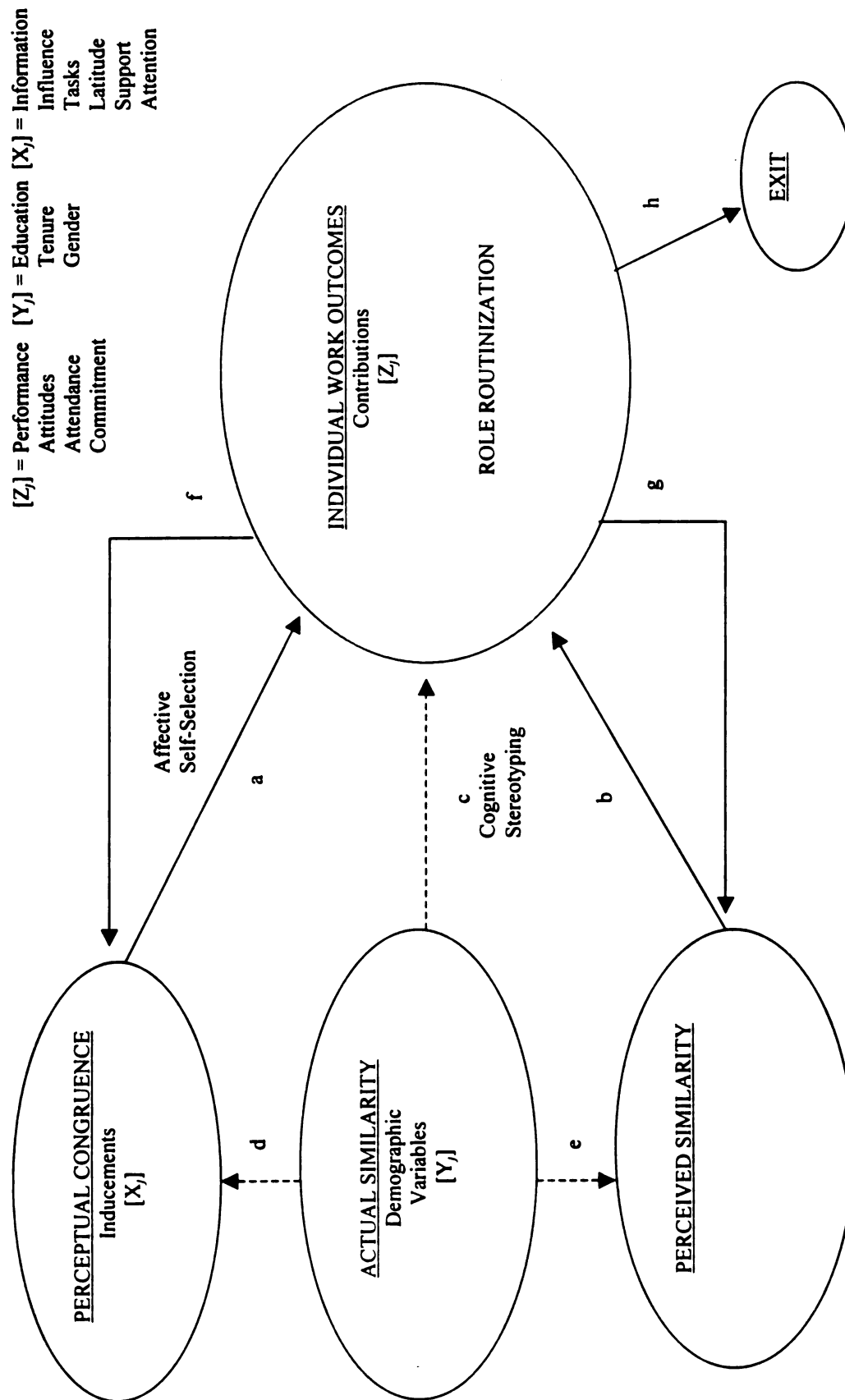


Figure 1. THE GENERAL STRUCTURAL (MEDIATION) MODEL OF SUPERVISOR-SUBORDINATE DYADIC FIT

Cashman, 1975; Graen, 1976; Graen and Scandura, 1987). Further, the quality of the exchange relationship is predicated on the employee contributions gained from the supervisor inducements proffered, and thus describes the essence of the dyadic interdependency in routinized roles.

Given these dynamics of the dyadic exchange arrangement, also known as the psychological contract, it is proposed that as perceptual congruence improves—or perceived similarity increases—individual outcomes involving child-care will improve (see Figure 1). Moreover, as the primary process of interest, perceptual congruence is conceptualized here as a set of supervisor *inducements* extended to enhance subordinate *contributions*, or individual outcomes. This conceptual approach is derived from the six supervisor inducements presented by Graen and Scandura (1987), X_j in Figure 1, including information, influence, challenging tasks, latitude or authority, supervisor support and supervisor attention. Of greatest interest in this study, the inducements of support and attention can be manifested as increasing perceptual congruence along a number of issues important to subordinates where supervisors invest additional effort in understanding and internalizing subordinate perceptions in exchange for enhanced contributions. This manifestation is feasible for two reasons. First, supervisory support and attention are

highly perceptually anchored and, therefore, derive from the unique personal resources of the supervisor (Graen and Scandura, 1987). Second, the vertical dyad linkage model (VDL) refined by Graen and his associates presupposes that dyadic exchange is consummated through perceptual mechanisms. Thus, the inducements of interest in this study are subsumed by either 1) psychosocial **support** mechanisms offered by the supervisor or 2) psychosocial **attention** given to the subordinate by the supervisor. Specifically, supervisor support is extended from other research (Graen and Scandura, 1987; Goff et al. 1990; Kossek and Nichol, 1992) to encompass subordinate perceptual congruence of supervisor supportiveness for the subordinate's child-care related problems (Figure 1). This support construct reflects the subordinate's perception or judgment that the supervisor has made a significant effort to provide psychological and/or material assistance to assuage his or her work-related child-care problems. Supervisor attention (Graen and Scandura, 1987) entails subordinate perceptual congruence regarding supervisory interest in improving subordinate 1) work attitudes and 2) absenteeism, as affected by child-care problems.

Analogously, subordinate contributions can be conceptualized as the individual outcomes "elicited" through supervisory rewards because

contributions are, *de facto*, evaluated by the organization in terms of supervisory perceptions across dimensions of subordinate performance and motivation. Notwithstanding precisely measured employee contributions—industrial production output, for example—indices of performance and indices of work-motivation such as attitudes, and to a lesser extent attendance, are prescribed by supervisory judgments. The contributions (outcomes) depicted in the model include supervisor evaluations of performance, employee evaluations of their work attitudes as affected by work-family conflict, supervisor evaluations of subordinates' child-care related absenteeism, and subordinates' views of their level of organizational commitment. Each of these outcomes, furthermore, is conceptualized in relation to child-care problems.

The perceptual congruence and individual outcomes dynamic—that is, the inducements-contributions dyadic exchange—presented in the Figure 1 is describable in terms of Graen and Scandura's (1987) *role-routinization* phase of dyadic organizing. That is, the initial dyadic sampling which occurs in the role-taking phase—where the supervisor experiments with inducements within each dyad and scrutinizes each subordinate's motivation and ability to contribute, as subordinates' respond consistent with their individual attributes—is presumed to have

already been completed. Because this phase is relatively brief, and given the evidence that supervisors' form their perceptions of the dyadic quality within this phase (Graen and Scandura, 1987; Meglino, et al. 1989; Liden, Wayne and Stillwell, 1993), it is of interest mainly in entry-level analysis. Similarly, role-making is not specifically contained in the models because this phase is characterized by enough dyadic instability and investigative inconsistency that cross-sectional modeling is susceptible to perilous levels of measurement error and analytical imprecision. Graen and Scandura's (1987) third phase, role-routinization, is thus posited as the level of dyadic interdependence useful for assessment of the exchange relationship. This phase is marked by stability, reciprocal intuitive understanding and mutual empowerment in the dyad, continuing the set of inducements and contribution reciprocation initiated in the role-making phase. Hence, a cross-sectional view of the exchange relationship will not be afflicted with excessive random individual variation; the congruence of leader-member perceptions are expected to be reasonably stable, given a sample of dyads existing longer than several months (Liden et al. 1993). However, this is not to render the model static. On the contrary, paths *f* and *g* in Figure 1 indicate that cyclical leader-member exchange can produce substantive repercussions for both dyadic parties. In particular,

because the work-related domains of supervisor-subordinate perceptual congruence are myriad, changes, innovations and conflicts in the LMX dyad are anticipated through the dynamic essence of the model.

Finally, the terminus of the model is the pervasive and continuing existence of incongruent perceptions that precipitate a dysfunctional exchange. In sum, a lower bound of role routinization quality is violated for one or both parties and subordinate departure from the dyad, unit or organization is predicted.

C. Main Effects Hypotheses in the Conceptual Model: Perceptual Congruence and Dependent Variables

The main effects relationships between perceptual congruence and actual similarity with individual outcomes, respectively paths *a* and *c* in the model, will be examined first for two reasons. First, a mediated relation requires that both the independent variable—in this case actual similarity—and the mediator—perceptual congruence—are significantly related to the dependent variable (Baron and Kenny, 1986). Secondly, the improvement in predictive power through use of Edwards' (1993a; 1993b; 1994; 1995) polynomial regression method over conventional difference scores can be elucidated. The predictive power of perceptual congruence for the

dependent variables Z_j can be justified through theory and empirical findings.

(1) Supervisor Support: Subordinate's Perceptual Congruence

Beginning with congruence in supervisors' supportiveness for the subordinates' work/child-care balancing, it has been shown that a supervisor's degree of work/family supportiveness was not significantly related to subordinates' performance ratings (Kossek and Nichol, 1992). However, this result was based on a one-dimensional subordinate view of support and neglected to consider the supervisors' views of their supportiveness or an interaction between the two perceptions. Graen and Scandura (1987) have theorized that the supportiveness of a supervisor is fundamental in inducing subordinates to accept increasingly challenging unstructured tasks, as part of dyadic organizing. This implies that the subordinate must perceive such supportiveness to reciprocate with competent performance. Pulakos and Wexley (1983) found that general perceptual similarity predicted the supervisor's performance evaluation of the subordinate while Wexley and Pulakos (1983) discovered, in part, that supervisor supportiveness of employees' work behaviors was associated with subordinate perceptual congruence across dimensions of managerial dependability and loyalty. Wexley et al. (1980) found that subordinate

performance improved as dyadic perceptual congruence involving forms of supervisor supportiveness improved. Finally, Zalesny and Kirsch (1993) found a marginally significant correlation between supervisor-subordinate congruence on interpersonal relations and performance ratings of subordinates. Overall, this evidence suggests that a predictive link exists between various forms of dyadic congruence in supervisor supportiveness and the contingent subordinate performance ratings. The following hypothesis is therefore proposed.

Hypothesis 1: Increasing dyadic congruence regarding perceptions of supervisor supportiveness for subordinates' work/child-care conflicts will generate improved subordinate performance ratings.

In addition, Kossek and Nichol (1992) reported a significant, moderate and positive correlation between employees' perceptions of supervisor support for child-care problems and employees' views of their work-related attitudes as influenced by work/family conflict. This suggests the existence of at least an individual effect of supervisor support on employee attitudes, given the positive but nonsignificant path coefficient in their model. Again, Graen and Scandura (1987) have theorized that supervisor support acts as an inducement for various employee contributions, which implicitly encompasses better attitudes toward work.

Since employees must recognize child-care related supportiveness as an inducement for the support to be influential, it follows that the more congruently the parties perceive the supervisor's efforts to be supportive, the greater the impetus for subordinates to reciprocate with improved work-related attitudes. Finally, Liden et al. (1993) have showed that member liking of the leader and leader liking of the member in dyads were both strong, positive predictors of high-quality leader-member exchange relationships across three time horizons. Although this interpersonal liking was assessed for individual effects and did not consider the potential incremental predictive power of congruence (or interaction), it is a reasonable proxy for supportiveness, as both constructs are founded on affective processing and its consequent reciprocity. Because subordinate work attitudes are tied to LMX quality (Graen and Scandura, 1987; Liden and Graen, 1980), therefore, it can be inferred that increasing perceptual congruence on supervisor support, a correlate of interpersonal liking, will predict enhanced work attitudes, i.e. higher LMX quality. In short, it is posited that dyadic congruence on supervisor support will be associated with improved worker attitudes toward work/family integration. The following hypothesis obtains.

Hypothesis 2: Increasing dyadic congruence regarding perceptions of supervisor supportiveness for subordinates' work/child-care conflicts will generate improved subordinate attitudes toward integrating work and family responsibilities.

With respect to subordinate attendance as disturbed by child-care difficulties, Goff et al. (1990) found that supervisor support was related to increased absence. This unanticipated finding was possibly the result of added accommodation by supportive supervisors and/or the impetus for subordinates in higher quality dyads to risk reprimand. More likely, it is an anomalous finding generated by a very small sample and methodological flaws in the research design. Kossek and Nichol (1992) found only a very small indirect effect from supervisor support to attendance, although in the expected negative direction. Nevertheless, absenteeism researchers have posited a link between leadership style and attendance, albeit through the intervening variables of job satisfaction and attendance motivation (Steers and Rhodes, 1978). In fact, McShane (1983) discovered a negative relation between satisfaction with supervision and absence behavior, suggesting that incongruence on the level of support in dyads can generate withdrawal from work. Brooke and Price (1989), in testing the Steers and Rhodes (1978) model revealed several negative relations between supervisor support related variables and absenteeism, as mediated by job satisfaction.

In total, these findings indicate links between the perceived supportiveness of the supervisor and subordinates' absence rates. Importantly, it is proposed that as the dyadic parties converge in perceptual congruence on this issue—that is, supervisors' become more supportive and subordinates perceive this—employee attendance will improve.

Hypothesis 3: Increasing dyadic congruence regarding perceptions of supervisor supportiveness for subordinates' work/child-care conflicts will generate improved subordinate attendance.

While the predictive power of dyadic perceptual congruence on support regarding organizational commitment has not been empirically tested, the relationship between individual level supervisor supportiveness and subordinate organizational commitment has been well documented. For example, Green, Anderson and Shivers (1996) found that forms of perceived supervisor supportiveness on the job, as measured through an LMX scale, was an antecedent of organizational commitment. Although the supervisor support-commitment causal flow was mediated by job satisfaction, the overall path effect was significant and reasonably large (+.32). The influence of these support variables, however, is only definitive with respect to individual level effects. A related study found no correlation between organizational commitment and perceptual congruence regarding

merit-pay raises (Turban and Jones, 1988); however, the commitment measure consisted of only one item. Thus, the proposition that dyadic perceptual congruence over supervisor supportiveness predicts increased organizational commitment will be derived from the essence of the VDL model: subordinates in higher-quality dyads will perceive greater support from their supervisors, granted as inducement, and will reciprocate with increased commitment to the dyad, the unit and the organization compared to lower quality dyad members.

Hypothesis 4: Increasing dyadic congruence regarding perceptions of supervisor supportiveness for subordinates' work/child-care conflicts will generate improved subordinate organizational commitment.

(2) Supervisory Attention to Subordinates' Child-Care Generated Work Problems: Supervisor's Perceptual Congruence of Subordinates' Attitudes Toward Managing Work and Child-Care Conflict.

Researchers (Graen and Schieman, 1978) have acknowledged that in interdependent dyads, supervisors invest time in understanding the job-related problems of subordinates, particularly in the case of high-performing, trustworthy, and loyal subordinates. While Graen and Scandura (1987) subsequently emphasize that the amount of attention given to a subordinate's professional development reflects the interpersonal quality of the dyad, the earlier research indicates that a broad range of

increased supervisor attentions engender gradations of supervisory concern contingent on the quality of the dyad. Thus, Graen and Schieman (1978) confirm the importance of strong supervisory attention given to ameliorate damaging psychological and material influences on subordinates' job performance:

If a leader and a member have a high-quality dyadic relationship, the leader should be more aware of the problems confronting the member on the job. Hence, their perceptions should be more alike regarding the severity of job problems than those of a leader and a member in a low-quality relationship. Another important set of variables . . . is that describing the relationship itself. Such variables include sensitivity of the leader to the member's job and attention, information, and support given the member by the leader. Despite the subjectivity of these relational variables, if the quality of the interdependencies is high, leader and member should agree more accurately about these variables than those locked into lower quality relationships (p. 206).

Indeed, a subordinate's dependability and motivation (Liden and Graen, 1980) reflect critical work-related attitudes valued by the supervisor and are mirrored in performance evaluations. In view of VDL prescriptions, as dyad quality increases, problems such as child-care that antagonize work performance will generate more supervisory attention. Recognized by subordinates, such extra attention will enhance perceptual congruence and hence, produce better interpersonal dyadic understanding of the work-family conflict depressing worker psychological ability to

perform. In other words, as supervisors pay more attention to subordinates' job-related attitudes/problems interface, e.g. ability to perform and balance child-care needs, new information empowers supervisors to intervene; perceptual congruence improves, especially with dyad quality, and is evident in better performance. Evidence for this causal flow has been found or inferred in a number of empirical studies (Graen and Schiemann, 1978; Liden and Graen, 1980; Graen and Scandura, 1987). And as Wexley and Pulakos (1983) affirm, "congruent perceptions of another person's work-related attitudes is a positively reinforcing experience." Thus theory and evidence suggest the following hypothesis.

Hypothesis 5: Greater manager's perceptual congruence (MPC) regarding subordinates' attitudes toward managing work and child-care conflict will produce improvement in subordinates' performance ratings.¹

This rationale is also applicable to the connection between dyadic perceptual congruence in subordinates' attitudes toward work-family conflict management and subordinate attendance. As an inducement for acceptable attendance, supervisors are expected to more closely analyze work-related problems that depress favorable subordinate work-attitudes and seek to attend to them in some manner recognizable to the subordinate.

The result is a tendency toward convergence of attitudinal perceptions, subordinate internalization of this attention, and better attendance by subordinates. In effect, supervisor attention to subordinates' work-family integration stimulates a highly aversive source of subordinate indebtedness that can only be reduced through reciprocation (Greenberg, 1980). In this case, reciprocation will involve subordinate efforts to maintain good attendance or improve absenteeism, consistent with the level of dyad quality, or will produce appropriate supervisory accommodation of subordinates' child-care time allocation. As well, Kossek and Nichol (1992) report a significant, moderate and negative correlation between employee attitudes regarding work-family integration and supervisors' evaluations of absenteeism caused by child-care problems. While this association represents individual rather than congruence or interaction effects, it does suggest that supervisory attentiveness to subordinates' work-family attitudes can ameliorate absence behavior.

Moreover, absence researchers have proposed complementary theory that specifies a path between supervisory attention, work-related attitudes and attendance. Steers and Rhodes (1978) have modeled an indirect link

¹ Perceptual congruence on subordinates' attitudes toward managing work and child-care conflict is not used to predict subordinate attitudes because this would obviously present a tautological fallacy.

between leadership style and subordinate work ethic as they jointly influence employee attendance. Importantly, this model posits that as a subordinate's work ethic (attitudes) strengthens, motivation to attend work increases. Indirectly, as the supervisor's style becomes more considerate—that is, more supportive and attentive—job satisfaction improves and stimulates a stronger desire to attend work. However, child-care problems are posited to moderate attendance motivation, such that at higher levels of work-family conflict, attendance will diminish. The model implies, indirectly, that an attentive supervisor can assuage psychological and perhaps material work-family difficulties through attention to and support of attitudes. An empirical test of a reduced version of the model demonstrated that as work attitudes improved, job satisfaction improved, leading to reduced absenteeism (Brooke and Price, 1989). This framework generally accommodates a VDL interpretation such that as dyad quality grows, supervisors will become more attentive to family responsibilities that might impede strong subordinate work attitudes, including the desire to maintain a good attendance record. All this evidence is conducive to the supposition that as supervisors become more attentive to the work stressors pressuring employees' work ethic (attitudes), such attention generates a

dyadic perceptual congruence across attitudes and work-family exigencies, which should enhance subordinate attendance.

Hypothesis 6: Greater manager's perceptual congruence (MPC) regarding subordinates' attitudes toward managing work and child-care conflict will produce improvement in subordinates' attendance.

Finally, no empirical studies relating dyadic perceptual congruence involving attitudinal measures to organizational commitment could be identified. Evidence linking various work-related attitudes such as job involvement, job satisfaction, satisfaction with supervision and so forth to organizational commitment are abundant (e.g. Knoop, 1995; Harris, Hirschfeld, Feild, and Mossholder, 1995; Mathieu and Zajac, 1990; O'Reilly, Chatman and Caldwell, 1991; Porter, Steers, Mowday and Boulian, 1974). These studies generally indicate that positive work-related attitudes lead to an increase in organizational commitment. However, they assess individual subordinate work-attitudes and organizational commitment from a unilateral perspective.

The VDL model of dyadic interdependency provides the most direct theoretical support for the latter relationship. As dyadic quality increases, supervisors will be expected to learn more about employees' attitudes toward handling child-care and work conflicts; subsequently this attention

will yield perceptual congruence across these attitudes that stimulates subordinates' organizational commitment on a level that reflects dyad quality. Hypothesis 7 is therefore asserted.

Hypothesis 7: Greater manager's perceptual congruence (MPC) regarding subordinates' attitudes toward managing work and child-care conflict will produce improvement in subordinates' organizational commitment.

Overall, the limited empirical evidence and VDL/dyadic organizing theory suggest that as supervisor-subordinate perceptual congruence involving work-related attitudes grows—probably in proportion to dyadic quality—individual outcomes will improve.

(3) Supervisor Attention to Subordinates' Child-Care Generated Work Problems: Managers' Perceptual Congruence of Subordinates' Child-Care Related Absenteeism.

No study could be identified which examined a causal connection between perceptual congruence involving absenteeism patterns and individual performance. Kossek and Nichol (1992) did find an individual level effect in their path model (path coefficient = $-.35, p < .05$): supervisors rated employees perceived as having excessive child-care caused absenteeism as poorer performers than employees with less child-care related absenteeism. Indeed, this result is consistent with the recent management determination that regardless of "fault," an employee must be

present at work to receive satisfactory performance ratings (Moore, Nichol, and McHugh, 1992). However, clearer supervisory perception of child-care related absenteeism reflects a unilateral judgment of the issue. The theory of vertical dyad linkage supports the proposition that as dyadic quality rises, a more congruent supervisor-subordinate understanding of the child-care related absence problem should emerge, as the supervisor pays extra attention to work-family conflicts of more highly valued employees. This suggests, at least for the upper two-thirds of employees (Liden and Graen, 1980; Graen and Schiemann, 1978) that dyadic perceptual congruence regarding child-care stressors at work might actually improve performance ratings. As well, the precepts of dyadic organizing (Graen and Scandura, 1987) imply a supervisory inducement of attention to valued subordinates' work-related problems, e.g. child-care, with a subordinate response being a contribution of good performance.

Hypothesis 8. Stronger manager's perceptual congruence (MPC) involving the child-care generated absenteeism of subordinates will produce improved performance ratings of subordinates.

The remaining link between the dependent variable organizational commitment and dyadic perceptual congruence regarding child-care related absenteeism is more ambiguous. Traditional absenteeism theory proposes

(Steers and Rhodes, 1978; 1984) a reciprocal causal path between subordinate absence behavior and subordinate organizational commitment,² and empirical findings support this linkage, at least in a recursive sense (Brooke and Price, 1989; Farrell and Stamm, 1988). Thus, in light of the theory and empiricism examined, it is hypothesized that the recursive relation can be captured in this sample.

Hypothesis 9. Stronger manager's perceptual congruence (MPC) involving the child-care generated absenteeism of subordinates will produce improved subordinate organizational commitment.

D. Main Effects Hypotheses in the Conceptual Model: Actual Similarity and Dependent Variables

The relationships between actual similarity and individual outcomes—path *c*—are now conceptualized as the second set of main effects in the model. The independent variables include education,

² Note that these analyses encompass only recursive models; they do not inform the reciprocal processes that can emerge as subordinate and supervisor perceptions converge through extensive, continuous interaction. Because the model presented includes dyadic psychosocial feedback, i.e. paths *f* and *g*, and is intended to analyze relationships heretofore unexplored, role routinization is not viewed as a static process. Hence, it is asserted that at some point in this dyadic cycle of reciprocation in leader-member exchange, perceptual congruence on child-care related absenteeism can be modeled as a predictor of both subordinate attitudes toward managing work-family conflict and subordinate organizational commitment. However, because this analysis is based strictly on cross-sectional data and is purely recursive, no attempt to capture these reciprocal processes will be undertaken.

organizational and position tenure, and gender, while the dependent variables again include subordinate performance, attitudes toward managing work and child-care conflicts, child-care generated absenteeism, and organizational commitment. As with the conceptual congruence main effects portion of the model—path α —the dependent variables are perceptually anchored. However, the actual similarity indices are not psychometrically measured constructs.

(1) Education.

With respect to education, Zalesny and Kirsch (1989) reported that the separate individual effects of subordinate and supervisor levels of education had no influence on subordinates' performance ratings. These authors did discover that congruence between subordinate and supervisor on educational attainment was strongly positively correlated with the performance rating of the subordinate. However, the suggested link of educational congruence and subordinate performance rating was not found in relational demography research (Tsui and O'Reilly, 1989). Other research has uncovered a negative relationship between dyadic educational congruence, and supervisory affect toward subordinates and subordinate role ambiguity (Tsui and O'Reilly, 1989). That is, as subordinates and supervisors attain similar educational levels, supervisors report less liking

for subordinates, although the latter experience less role ambiguity. Indeed, it can be inferred from these favorable results for subordinates that work attitudes and organizational commitment can be expected to improve when dyadic educational congruence exists. Finally, there appears to be no consistent relationship between educational level and absence behavior (Spencer and Steers, 1980). It is proposed that dyadic educational congruence will be associated with satisfactory subordinate attendance because similar educational attainment enhances interpersonal clarification (Tsui and O'Reilly, 1989). As has been pointed out (March and Simon, 1958; Tsui and O'Reilly, 1989), differences in education in dyads/groups are associated with differences in beliefs and values, generating "language incompatibility" and dyad/group dysfunction from infrequent or ambiguous communication. In sum, the evidence suggests that subordinates and supervisors possessing congruent educational backgrounds will communicate more effectively, facilitating more favorable subordinate performance ratings, work attitudes, organizational commitment and satisfactory attendance. In short, as Zalesny and Kirsch (1989) point out educational similarity in supervisor-subordinate dyads produces a language compatibility between members predicated on similar beliefs, values, intellectual background, and interpersonal understanding via similar work-

behavior schemas that is expected to generate favorable individual outcomes. The subsequent hypotheses are thus derived.

Hypothesis 10. As subordinate and supervisor become more similar in their educational achievements, subordinates will receive higher performance ratings.

Hypothesis 11. As subordinate and supervisor become more similar in their educational achievements, subordinates will hold more favorable attitudes toward juggling work and child-care responsibilities.

Hypothesis 12. As subordinate and supervisor become more similar in their educational achievements, more favorable views of the subordinate's child-care generated absenteeism will result.

Hypothesis 13. As subordinate and supervisor become more similar in their educational achievements, subordinates will exhibit stronger organizational commitment.

(2) Organizational and Position Tenure.

A persistent stereotype is that long-tenured, older employees are poorer performers than younger employees despite a paucity of research evidence to support this position (McEvoy and Cascio, 1989; Warr, 1990). Nevertheless, dyadic dissimilarity in tenure has led supervisors to rate dissimilar subordinates' performance lower than subordinates with more congruent terms of tenure (Tsui and O'Reilly, 1989; Zalesny and Kirsch, 1989). Given the continuing intrusion of tenure/age stereotypes and related

research showing that younger supervisors tend to rate older employees lower on performance—while older supervisors give higher performance evaluations to older workers (Cleveland and Landy, 1981)—it is proposed that dyadic tenure dissimilarity will lead to inferior performance ratings for subordinates. This should obtain for both organizational and position tenure, as attributions of stagnation and unproductiveness can be expected by younger supervisors, while older supervisors can be expected to attribute long tenure with the organization, and in one's position, to effective subordinate performance.

The link between tenure similarity in supervisor-subordinate dyads and subordinates' attitudes regarding the balancing of work and child-care has not been clarified empirically. Inasmuch as dyadic tenure similarity has been associated with poor outcomes for subordinates (Tsui and O'Reilly, 1989), it is reasonable to expect diminished communication and understanding between subordinates and supervisors of significantly different tenure, particularly position tenure. In fact, Tsui and O'Reilly's (1989) finding that diverging job tenure resulted in reduced supervisor affect for the subordinate and increased subordinate role ambiguity is consistent with the notion that such dissimilar supervisors will not be effectively empathetic to subordinates' attitudes toward managing work

and child-care. Ironically, relational demography research (Tsui, Egan and O'Reilly, 1992) analyzing dissimilarity from the group did not find that tenure dissimilarity reduced organizational commitment. While increased tenure has consistently been associated with strong organizational commitment, cumulative evidence indicates that as tenure lengthens for both subordinate and supervisor, particularly job tenure, it should generate growing similarity between dyadic parties in their attitudes and behaviors (Schneider, 1987). An inference of improved organizational commitment is warranted where dyadic similarity in tenure constitutes one observable element of attachment to the dyad and the organization.

In general, empirical findings indicate that higher-tenured employees have better rates of attendance than their less-tenured counterparts (Nicholson, Brown, and Chadwick-Jones, 1977; Spencer and Steers, 1980; Garrison and Muchinsky, 1977). Beyond these individual level effects, Tsui et al. (1992) reported that differences in tenure from the work group increased absence frequency. Clearly, supervisor and subordinate interactions are more direct in the sense that in a dyad a subordinate cannot become inconspicuous, as perhaps in a group setting. In closely interacting dyads, it is probable that tenure differences would generate even stronger subordinate motivations to be absent. This is particularly ominous where

the tenure differential chronologically and psychologically separates supervisor from the domain of child-care problems. Hence, where tenure diverges in a dyad, the subordinate is expected to experience more child-care related absenteeism problems. In sum, subordinates and supervisors with similar lengths of both organizational and position tenure are anticipated to share similar attitudes, beliefs and experience. These work-related commonalities will facilitate more effective communication and interpersonal affect for dyad members similar in tenure. The preceding rationale culminates in the following hypotheses.

Hypothesis 14(a, b). Supervisor-subordinate dyadic organizational (position) tenure similarity will generate higher subordinate performance ratings compared to dyads in which the tenure of the parties diverges.

Hypothesis 15(a, b). Supervisor-subordinate dyadic organizational (position) tenure similarity will generate more favorable subordinate attitudes toward managing work and child-care responsibilities compared to dyads in which the tenure of the parties diverges.

Hypothesis 16(a, b). Supervisor-subordinate dyadic organizational (position) tenure similarity will generate more favorable views of the subordinate's child-care generated absenteeism compared to dyads in which the tenure of the parties diverges.

Hypothesis 17(a, b). Supervisor-subordinate dyadic organizational (position) tenure similarity will generate subordinate organizational commitment compared to dyads in which the tenure of the parties diverges.

(3) Gender.

The variables used to assess demographic similarity, the Y_j = [gender, education, tenure], have been assessed as independent measures in many studies. Indeed, the gender research has consistently shown that working, married and single female parents:

- 1) allocate more time to child-care (Googins and Burden, 1987; Pleck, 1985);
- 2) experience more spillover from child-care to work (Couter, 1984);
- 3) experience more psychological and emotional stress than men over family concerns (Jick and Mitz, 1985); and
- 4) hold less favorable attitudes to work/family integration than men (Kossek, 1990; Kossek and Nichol, 1992).

Furthermore, this gender-induced spillover has been found to increase absenteeism for women with young children (Klein, 1986; Kossek and Nichol, 1992). In short, these noted difficulties for working women with children imply that females experiencing family-related problems that interfere with work will receive lower performance evaluations and will be construed as less committed to organizational effectiveness relative to men.

Importantly, subordinate gender similarity with a supervisor may enhance individual outcomes, particularly for women. Higher performance

evaluations, reduction of child-care related absence, improved work-related attitudes, and stronger organizational commitment will occur because a female supervisor is believed to possess better insight into or empathy with women's difficulties with work/family conflict issues. Empirical evidence, in part, supports these assertions. Research indicates that gender dissimilarity in the supervisor-subordinate dyad predicts lower performance ratings and less liking of the subordinate by the supervisor, while the subordinates in mixed-gender dyads also experience greater role ambiguity and role conflict (Tsui and O'Reilly, 1989).

In addition, females have been reported to possess more negative attitudes toward work (Dodd-McCue and Wright, 1996), particularly with respect to managing work and family responsibilities (Kossek, 1990). Further, women have been found to be less attached to their organizations compared to men as measured by attitudinal organizational commitment (Dodd-McCue and Wright, 1996; Cohen, 1983; Graddick and Farr, 1987; Aranya, Kushnir and Valency, 1986). However, when dyadic makeup is taken into account, Green, Anderson and Shivers (1996) have discovered that eliminating gender dissimilarity between subordinate and supervisor leads to an increase in job satisfaction and commitment. Clearly, men as well as women appear to benefit from same-sex leader-member dyads with

respect to performance ratings, work-related attitudes, absenteeism and organizational commitment. Taken together, the latter theory and empirical findings suggest that dyadic similarity in gender improves interpersonal relations, communication, and reciprocal support based on similarity in attitudes, values and experiences (Tsui and O'Reilly, 1989). It is therefore proposed that supervisor-subordinate dyads comprised of members of the same sex will experience enhanced interpersonal outcomes through the similarity effect: males will interact and communicate more comfortably with males; females will interact and communicate more effectively with females. However, this analysis is primarily interested in the primary care provider's dyadic experiences and outcomes, which the previously reviewed literature demonstrated to be the working female-parent obligation. Hence, the analytical emphasis will be the assessment of female-female and male-female dyads such that the following hypotheses are derived.

Hypothesis 18. Dyads in which both parties are female will be associated with higher subordinate performance ratings relative to dyads with male supervisors and female subordinates.

Hypothesis 19. Dyads in which both parties are female will be associated with more favorable subordinate attitudes toward managing work and child-care conflicts relative to dyads with male supervisors and female subordinates.

Hypothesis 20. Dyads in which both parties are female will be associated with more favorable evaluations of the subordinate's child-care generated absenteeism relative to dyads with male supervisors and female subordinates.

Hypothesis 21. Dyads in which both parties are female will be associated with stronger subordinate organizational commitment relative to dyads with male supervisors and female subordinates.

E. The Mediation Model: Mediation Hypotheses

The model in Figure 1 is predicated on the confrontation of theory surfaced in psychologically anchored attraction-selection models and the observable-variable theory of organizational demography. Reiterating findings from chapter 2, Schneider (1983; 1987) founded his ASA theory on individual self-selection into and out of organizations as a result of psychologically recognized similarity between prospective employees and organizational incumbents. Byrne (1971) also recognized this effect of attraction-selection where one of his hypothesized channels of interpersonal attraction was perceptual: the perceived similarity between interacting parties. Finally, Turban and Jones (1988) affirmed the typological differentiation of supervisor-subordinate similarity and proposed perceived similarity and forms of perceptual congruence as

distinct, psychologically generated processes. In short, the fact that these psychic sources of similarity have been found to be sustained over time (Liden et al. 1993; Graen and Scandura, 1987) suggests that such interpersonal similarity dynamics will continue to influence dyadic functioning through the future of the relationship. Thus, path *a*, described as perceptual congruence, and path *b*, described as perceived similarity, directly influence outcomes and reflect affective processes.

Organizational demography theory (Pfeffer, 1983), as originally conceived, eschewed intervening, latent processes in favor of more concrete and more easily measured variables to describe and analyze dyads and groups in organizations. The critical theme involved comparisons of demographic and structural variables for individuals within the unit of interest; hence, distributions of demographics in organizations became the analytical focus. Subsequent work operationalized the theory in terms of relational demography—examining primarily the effects of dyadic demographic similarity and dissimilarity—but did not circumvent the role of psychological processes (Tsui and O'Reilly, 1989). Instead, demographic similarity in dyads was asserted to have both affective and cognitive connections to individual outcomes (Tsui and O'Reilly, 1989; Tsui, Egan and Xin, 1994). The cognitive link to individual outcomes is

based on the stereotyping process in which an individual judges and is judged on sets of cognitively embedded beliefs regarding the group or groups to which he/she and relevant others belong. Thus, the relational demography school of research posits the indirect and affective influence of actual similarity on outcomes through some network of processes of interpersonal attraction and perceptual-attitudinal convergence, which is not measured or modeled but only inferred. To ameliorate such nomological deficiency, this study posits that two of the similarity channels affirmed by Turban and Jones (1988), perceptual congruence and perceived similarity, paths *d* and *e*, in fact are the affective mediators of the influence of actual similarity. Most importantly, a direct effect of actual similarity on individual outcomes, path *c*, is predicated on the cognitive element contained in relational demography research. The comparison of attraction-selection-attribution theory and organizational demography theory therefore devolves to the existence or nonexistence of a direct link between actual similarity and perceptual congruence in this analysis.

Thus, pursuant to Schneider's (1983; 1987; 1995) prognostications involving the seminal processes linking psychological similarity to favorable individual outcomes, Turban and Jones' (1988) differentiation of subordinate-supervisor similarity and the limited evidence supporting Tsui

et al. (1994) proposed causal route of cognitive stereotyping, the following hypotheses of structural effects are posited.

Hypothesis 22 (a,b,c,d): Dyadic perceptual congruence regarding supervisor supportiveness will mediate the relation between dyadic education similarity and: (a) subordinates' performance ratings; (b) subordinates' work attitudes toward managing work and child-care responsibilities; (c) subordinates' child-care related absenteeism; and (d) subordinates' organizational commitment.

Hypothesis 23 (a,b,c,d): Dyadic perceptual congruence regarding supervisor supportiveness will mediate the relation between dyadic organizational tenure similarity and: (a) subordinates' performance ratings; (b) subordinates' work attitudes toward managing work and child-care responsibilities; (c) subordinates' child-care related absenteeism; and (d) subordinates' organizational commitment.

Hypothesis 24 (a,b,c,d): Dyadic perceptual congruence regarding supervisor supportiveness will mediate the relation between dyadic position tenure similarity and: (a) subordinates' performance ratings; (b) subordinates' work attitudes toward managing work and child-care responsibilities; (c) subordinates' child-care related absenteeism; and (d) subordinates' organizational commitment.

Hypothesis 25 (a,b,c,d): Dyadic perceptual congruence regarding supervisor supportiveness will mediate the relation between dyadic gender similarity for same-sex female dyads and: (a) subordinates' performance ratings; (b) subordinates' work attitudes toward managing work and child-care responsibilities; (c) subordinates' child-care related absenteeism; and (d) subordinates' organizational commitment.

Hypothesis 26 (a,b,c): Dyadic perceptual congruence regarding supervisor attention to subordinates' attitudes toward managing work and child-care responsibilities will mediate the relation between dyadic education

similarity and: (a) subordinates' performance ratings; (b) subordinates' child-care related absenteeism; and c) subordinates' organizational commitment.

Hypothesis 27 (a,b,c): Dyadic perceptual congruence regarding subordinates' attitudes toward managing work and child-care responsibilities will mediate the relation between dyadic organizational tenure similarity and: (a) subordinates' performance ratings; (b) subordinates' child-care related absenteeism; and (c) subordinates' organizational commitment.

Hypothesis 28 (a,b,c): Dyadic perceptual congruence regarding subordinates' attitudes toward managing work and child-care responsibilities will mediate the relation between dyadic position tenure similarity and: (a) subordinates' performance ratings; (b) subordinates' child-care related absenteeism; and (c) subordinates' organizational commitment.

Hypothesis 29 (a,b,c): Dyadic perceptual congruence regarding supervisor attention to subordinates' child-care related absenteeism will mediate the relation between dyadic gender similarity and: (a) subordinates' performance ratings; (b) subordinates' attitudes toward managing work and child-care responsibilities; and c) subordinates' organizational commitment.

Hypothesis 30 (a,b,c): Dyadic perceptual congruence regarding subordinates' child-care related absenteeism will mediate the relation between dyadic education similarity and: (a) subordinates' performance ratings; (b) subordinates' attitudes toward managing work and child-care responsibilities; and (c) subordinates' organizational commitment.

Hypothesis 31 (a,b,c): Dyadic perceptual congruence regarding subordinates' child-care related absenteeism will mediate the relation between dyadic organizational tenure similarity and: (a) subordinates'

performance ratings; (b) subordinates' attitudes toward managing work and child-care responsibilities; and (c) subordinates' organizational commitment.

Hypothesis 32 (a,b,c): Dyadic perceptual congruence regarding to subordinates' child-care related absenteeism will mediate the relation between dyadic position tenure similarity and: (a) subordinates' performance ratings; (b) subordinates' attitudes toward managing work and child-care responsibilities; and (c) subordinates' organizational commitment.

Hypothesis 33 (a,b,c): Dyadic perceptual congruence regarding to subordinates' child-care related absenteeism will mediate the relation between dyadic gender similarity and: (a) subordinates' performance ratings; (b) subordinates' attitudes toward managing work and child-care responsibilities; and (c) subordinates' organizational commitment.

F. Conclusion

The general structural (mediation) model, in sum, proposes a conceptual scheme in which psychological affective similarity processes (Schneider, 1983) are contrasted with inferred cognitive categorization (or stereotyping) processes (Tsui et al., 1994) in their relation to individual work outcomes. Indeed, whether the cognition involved in actual similarity categorization is mediated by the affective mechanisms underlying dyadic perceptual congruence in the prediction of work outcomes constitutes the empirical/teleological question that this study will resolve within the less than random boundaries of the sample. Thus, the next chapter will present

the analytic methodology to be used to evaluate the data sample. In this endeavor, an innovative statistical technique will be outlined to test mediation processes in which “streams” or patterns of congruence are being examined.

CHAPTER FOUR

METHODOLOGY AND STATISTICAL ANALYSIS

I. Introduction and Chapter Objectives

In traditional P-E fit studies, indices of congruence have typically been operationalized as difference scores or more complex profile similarity indexes (PSIs; Edwards, 1991; 1993a; 1993b; 1994; 1995). Of particular interest in this analysis are the interpretive and statistical deficiencies encompassed in the use of difference scores, which assume the general form $(X - Y)$, where X and Y represent scalar variables measuring a single entity or multidimensional variables measuring some set of elements reduced into an entity, with the measurement derived from different decisional sources. As a recent alternative, the application of Edwards' (1993a; 1993b; 1994; 1995; 1996) polynomial regression technique to congruence analysis ameliorates many of the shortcomings evidenced in the use of difference scores as independent variables, to assess P-E fit. In addition, Edwards (1995) presents an alternative to using difference scores as dependent variables.

Thus, this chapter begins with a brief overview of several central psychometric issues involved in congruence analysis and examines difference scoring deficiencies, explaining the heuristic and measurement advantages of polynomial regression (section II-A, B). Then, the application of polynomial multiple regression (PMR) in the analysis of the theoretical model—for main and mediating effects—is reviewed (section III-A, B). Subsequently, Edwards’ simultaneous equation estimation of congruence measures as dependent variables is examined, followed by the description of a proposed intermediary analytical tool—multivariate regression (section III-C, D). Finally, an innovative approach assessing congruence relationships where multiple dependent measures and polynomial independent measures are incorporated in the equations to be estimated is presented; and the extension of PMR to mediation models is detailed (section IV-A). The chapter concludes with a discussion of the survey instruments (section V-A), factor analytic and reliability analysis findings for the constructs (V-B), and a brief chapter summary (section VI).

II. Psychometric Issues in the Measurement of Congruence

Edwards (1991; 1993a; 1993b; 1994) and Kristof (1996) have surfaced a number of methodological problems that often afflict congruence research. Some of these are generated through sampling limitations and are difficult to avoid. For example, Edwards (1991) challenges the collection of sampling data from one job, unit or organizational source because the survey responses obtained will normally reflect the homogeneity characterizing the collection source; restriction of range ensues and can distort results. Similarly, Edwards (1991) and Kristof (1996) cite weaknesses in standard cross-sectional research design. They assert that reliance on correlates of P-E fit as outcomes is necessarily ambiguous in a causal sense; that is, it is more likely, according to Edwards (1991), that the relationship between congruence and outcomes is bidirectional or cyclically recursive. However, while research pragmatism typically prevents the collection of more heterogeneous samples across time, other methodological afflictions can be avoided through effective measurement of congruence indices.

A. Direct/Indirect Measures of Congruence.

One debate in the organizational behavior literature involves the measurement of congruence indices either directly or indirectly. Briefly, direct measurement assesses subordinate and supervisor views by directly asking one of them whether they, respectively, believe that a good fit for the given measure exists (Amy Kristof, 1996). That is, one dyad member, but not both, is asked to assess his/her perceptions and the other member's perceptions regarding some measure of fit. Thus, direct measurement is particularly appropriate where congruence is conceptualized as an intrapersonal judgment that the individual is similar to or fits well with the organizational entity of interest (in Kristof, 1996). As Kristof (1996) clarifies:

Using this conceptualization, good fit is said to exist as long as it is perceived to exist, regardless of whether or not the person has similar characteristics to, or complements/is complemented by, the organization (p. 11).

Despite the potential utility of direct measures of congruence (Graen and Schiemann, 1978; Hatfield and Huseman, 1982; Posner, Kouzes, and Schmidt, 1985), Edwards' (1991) has criticized their analytical value. He asserts that the independent effects of person and environment—

supervisors, in this case—can be confounded through the conscious or unconscious processing of both items in the index simultaneously by the subject, leading to nonorthogonal interactive effects. As well, consistency bias can occur where direct measures are used with other work-related attitudinal constructs such that responses to the latter will agree artificially with direct measures of congruence (Salancik and Pfeffer, 1977).

Alternatively, congruence can be evaluated indirectly with indices that are believed to measure fit more objectively. In effect, indirect measures are founded on an explicit comparison between separately rated individual and organizational, i.e. supervisory, characteristics (Kristof, 1996). Specifically, this measurement approach reflects more objective fit because it eschews the implicit judgments of congruence and consistency bias rendered by respondents through direct measuring of perceptions (Kristof, 1996). This is not to suggest, however, that indirect measures are more objective because they preclude the application of perceptual constructs. Rather, the indirect individual-level measurement process reviewed by Kristof (1996) is especially amenable to the independent conceptualization and calculation demands entailed by the parallel perceptual constructs derived from subordinate and supervisor responses.

Indeed, comparing a set of individual perceptual responses in subordinate-supervisor congruence analysis is preferable to comparing direct measures from only a single dyadic source because both parties' perceptions of dyadic interpersonal reality fuel their cognitive evaluations of and reactions to specific supervisor-subordinate interactions.

In short, the congruence constructs in this analysis are measured indirectly and reflect the psychometric advantages discussed. Specifically, congruence is assessed through manager's perceptual congruence or MPC (Turban and Jones, 1988) for all constructs except supervisor's support of the subordinate's work/family conflicts. That is, subordinates reported perceptual measures of their performance, absence behavior, and work attitudes, as each is influenced by child-care problems, while supervisors reported their perceptions of each of these subordinate-based measures. In contrast, supervisor support reflects subordinate's perceptual congruence or SPC (Turban and Jones, 1988) where each subordinate provides perceptions of their supervisor's supportiveness across a set of dimensions; the supervisor provides perceptual assessment of his/her supportiveness for each subordinate's work-related child-care difficulties.

B. Commensurate Measures.

Another measurement concern in congruence analysis surfaced by Edwards (1991) involves describing both components of the congruence measure with the same content dimensions. This means that component X and component Y should be assessed across identical dimension(s) so that no conceptual ambiguity afflicts the interpretation of X and Y results. While Kristof (1996) contends that it is difficult to achieve perfectly “commensurate” measures, this problem seems minimal in dyadic analysis because the same set of dimensions can be presented to both subordinate and supervisor in quite similar language in the survey instrument. Thus, each dimension of interest is collected for subordinate and supervisor, permitting multidimensional and unidimensional analysis. Indeed, the congruence measures in this study comply with the property of commensurate measurement as both subordinates and supervisors responded to the same sets of dimensions subsumed by each construct.

C. Conclusion

In sum, the data collected through the survey instrument in this analysis comply with psychometric properties of acceptably objective—that is, indirect—measurement and parallel scale dimensions. This

ensures that conceptual ambiguity and consistency bias has been minimized.

III. Difference Scores, Polynomial Multiple Regression in Congruence Analysis, and Congruence Measures as Dependent Variables

A. Difference Scores as Dependent Variables

Analyzing the differences between the perceptions, attitudes, and demographics of the two members of the supervisor-subordinate relationship to predict work outcomes requires a robust methodological technique. Edwards (1993a; 1993b; 1994) points out that traditionally, profile similarity indices (PSIs) have been widely used to study congruence in organizations; however, PSIs generate a number of methodological problems. Of particular interest in this study are the difficulties generated by use difference scores and the sums of difference scores. This set of indices includes (Edwards, 1993b):

$$(X - Y); \quad |X - Y|; \quad (X - Y)^2; \quad D^1 = \sum (X_i - Y_i);$$

$$|D| = \sum |X_i - Y_i|; \quad D^2 = \sum (X_i - Y_i)^2 .^1$$

To begin, Edwards (1993b) demonstrates that PSIs are imbued with two forms of conceptual ambiguity. First, PSIs that combine heterogeneous

¹These difference score forms are, respectively: algebraic difference; absolute difference; squared difference; sum of algebraic differences of scale items; sum of absolute differences of scale items; and sum of squared differences of scale items.

elements into a single score “defy clear interpretation, because they conceal the contribution of each element to the overall score” (Edwards, 1993b, p. 644). This position, however, may explicitly conflict with the standard approach to data reduction entailed in the psychometric construction and validation of measurement scales. Clearly, in its purest form, Edwards’ assertion renders multidimensional scaling inappropriate in congruence analyses, or at least demands an iterative reduction process that decomposes reliable and valid scales almost to the level of unidimensional variables. Further, Edwards (1993b) extends his argument by admonishing that PSIs fail to distinguish which items contribute to the difference between two constructs. He indicates that algebraic differences between multidimensional entities do not illuminate which dimensions contribute maximally or minimally to the overall difference score. Again, while this admonishment is tenable, its logical extension suggests that congruence indices based on multidimensional scaling are defective and seems to promote the use of unreliable single-item variables as predictors. Indeed, to maintain psychometric reliability and parsimony, it is not possible or desirable to decompose all constructs completely. Hence, further reduction of psychometric scales should depend on the causal or structural relations of

interest and persuasive evidence that multidimensional constructs can be reduced coherently. In Edwards' P-J fit analyses, such absolute decomposition is perhaps warranted since "the relationship between fit and outcomes often differs across job content dimensions," (1991, p. 330). Nevertheless, in this exploratory analysis, the relationship of individual scale items to outcomes has not been clearly established and thus remains an empirical issue. Because of this potential for impractical and perhaps excessively restrictive measurement outcomes, it is proposed here that psychometric scales used in subordinate-supervisor congruence studies not be considered egregiously conceptually ambiguous if they are highly reliable and validated.

Secondly, combining profiles from two divergent entities renders interpretation nebulous. This might occur, for instance, where two difference scores are themselves differenced; it occurs frequently in more complex PSIs (see Edwards, 1993b).

In addition, Edwards (1993b) points out that PSIs normally discard information regarding the direction of differences between entities and/or the magnitude of differences. Hypotheses derived from congruence indexes typically are based on the premise that some outcome is minimized or

maximized when the entities are equivalent. However, this assumes that the function relating the two congruence entities is symmetrical so that negative and positive differences produce an identical result (Edwards, 1993b); and such hypotheses assume that the outcome is constant at all points where the two entities are equal regardless of the absolute level (Edwards, 1993b). In short, it is likely that *prima facie* interpretation of difference scores distorts the meaning of the relationship between entities and outcomes. Indeed, functional forms are not inherently symmetrical, the direction of differences warrants individual interpretation, and absolute difference sizes cannot be assumed to reflect constancy in meaning across the combinations of scored differences.

Finally, Edwards (1993b) demonstrates that difference scores impose a highly restrictive set of constraints on the regression coefficients relating the component measures to the outcome. As he asserts, any set of constraints on regression coefficients should be tested empirically or have some *a priori* basis and not simply be imposed unconditionally. The next section will examine the genesis of these constraints and the effects of their elimination.

B. Polynomial Multiple Regression and Independent Variables

As an alternative to conventional difference scores and other PSIs, Edwards (1993a) proposes the use of polynomial regression equations to enhance the predictive vigor of congruence measures. Edwards (1993a) demonstrates that by expanding a standard difference equation, for example

$$(1) Z = b_0 + b_1(X - Y)^2 + e$$

where Z is the work outcome, $(X - Y)^2$ is the squared difference between entities, i.e. congruence measure, predictor b_1 is the slope coefficient, b_0 is the constant, and e is the error term, the following equation results:

$$(2) Z = b_0 + b_1X^2 - 2b_1XY + b_1Y^2 + e.$$

A cursory examination of the latter equation reveals that positive coefficients of equal magnitude measure the effects of both X^2 and Y^2 in addition to a negative coefficient twice the magnitude of the latter associated with XY . Adding linear terms and removing constraints on the coefficients yields the unconstrained equation:

$$(3) Z = b_0 + b_1X + b_2Y + b_3X^2 + b_4XY + b_5Y^2 + e.$$

This final equation illuminates some critical restrictions that the squared difference expansion (2) imposes on the regression coefficients of equation (3): 1) both b_1 and b_2 must equal 0; 2) b_3 and b_5 must be equal; and 3) b_3 , b_4 and b_5 must sum to 0. This derivation is critical because as has been shown (Edwards, 1992; Edwards and Harrison, 1993), most relationships of interest can be depicted through a linear or quadratic equation and because the constraints imposed by difference scores are usually rejected, requiring the interpretation of coefficients from unconstrained linear or quadratic equations. In sum, the revelatory premise here is that without sufficient *a priori* reasoning regarding coefficient constraints or some predetermined functional form, there is no empirical basis to expect the structural impositions surfaced in equation (2).

More specifically, Edwards (1993a) has shown that polynomial equation (3) significantly improves the total variance explained in the dependent variable (R^2). Using a standard F-test between the R^2 s of the preceding nested equations, he noted a significantly larger explained variance in unconstrained PMR equations relative to difference score equations across two dependent and six independent measures. Analogous results were discovered in the initial analyses of this study involving these

perceptual measures of supervisor support, employee work/family conflict attitudes, and employee attendance as predictors.

Finally, it is essential to note that PMR can be combined with response surface methodology (Box and Draper, 1987) to enable a visual-geometric and mathematical interpretation of the changes in the dependent variable as X and Y change. The software program SYSTAT/SYGRAPH reproduces a curvilinear, 3-dimensional graph, which provides a valuable visual tool for interpreting response surfaces. In addition, Box and Draper (1987) have provided a set of formulae that describe points and lines of interest in the three-dimensional regression coefficient space. For example, the stationary point, i.e., minimums or maximums, where the slope of the surface is 0 in all directions, and the principle axes of the surface, which are perpendicular and intersect at the stationary point, can be calculated to enhance understanding of changes along lines of interest on the surface. Where surface formulas involve products or ratios of regression coefficients, conventional tests of significance are inappropriate because formulas for standard errors of these expressions are not generally available

(Peddada, 1992). Hence, a nonparametric technique known as the “jackknife” can be used to estimate these latter forms of standard errors²

Overall, Edwards’ mathematical proofs and empirical results (1991; 1992; 1993a; 1993b; 1994), as well as preliminary results in this study, suggest that polynomial multiple regression is superior to conventional difference score analysis. The above approach was employed in this analysis to investigate the extent to which the regression coefficient constraints implicit in difference scores and PSIs attenuate explanatory power and obfuscate functional form relative to independent polynomial terms employed as predictors. Specifically, similarity across perceptual and demographic variables is used to predict various work outcomes.

**B. An Alternative to Difference Scores as Dependent Variables:
Simultaneous Equations**

While difference scores have not been widely used as dependent measures, such models have been presented and analyzed (e.g., Hedge and Kavanagh, 1988; McIntyre, Smith and Hassett, 1984; Pulakos, 1986; Ferris, Yates, Gilmore and Rowland, 1985; London and Wohlers, 1991; Shore and

² These calculations are quite complex and time demanding. They will not be used in this analysis. Instead, visual inspection of response surfaces will be undertaken.

Bleiken, 1991; Ashford and Tsui, 1991; Fox, Ben-Nahum, and Yinon, 1989; Mount and Thompson, 1987; Phillips and Bedeian, 1994; Zalesny and Kirsch, 1989). Indeed, models positing difference scores as independent variables are afflicted with a set of measurement problems similar to those identified with the use of difference scores as predictors. Edwards (1995) reviews the difficulties associated with dependent measure difference scores and provides a simultaneous regression model alternative.

Edwards (1995) first reaffirms that difference scores are less reliable than their component measures when the latter are positively correlated, which is typical (Johns, 1981). The result is that as reliability decreases, the standard error of the difference score increases, diminishing statistical power (Pedhazur, 1982). Thus, the probability of Type II error is exacerbated.

Second, Edwards (1995) points out that difference scores are conceptually ambiguous as they conceal the relative contributions of the component measures to variance in the composite dependent score. It is unlikely that the component measures contribute equally, particularly across sample-dependent measures of differences. That is, because the variance of a difference score is a unique function of the variances and covariances of

its component measures, the difference score's interpretation is expected to differ across empirical samples.

Third, Edwards (1995) asserts that the effects of the independent variables on difference scores and PSIs are confounded across the component measures. He demonstrates this problem by proposing the following equation:

$$(4) Y_1 - Y_2 = b_0 + b_1X + e,$$

where Y_1 and Y_2 are endogenous variables (together, the congruence measure), b_0 is the constant, b_1 is the slope coefficient of the independent variable X , and e is the disturbance term. Equation (4) can be rewritten as two equations, such that Y_1 and Y_2 are separate dependent variables:

$$(5) Y_1 = b_{10} + b_{11}X + e_1$$

$$(6) Y_2 = b_{20} + b_{21}X + e_2.$$

Then, subtracting equation (6) from equation (5), a summary equation can be recovered which retains the coefficients relating X separately to Y_1 and Y_2 .

This equation is as follows:

$$(7) Y_1 - Y_2 = (b_{10} - b_{20}) + (b_{11} - b_{21})X + (e_1 - e_2),$$

implying that $b_0 = (b_{10} - b_{20})$ and $b_1 = (b_{11} - b_{21})$. However, estimating equation (4) gives no information regarding the signs and magnitudes of b_{11} and b_{21} except that their difference equals b_1 . Thus, as Edwards indicates, the effect of X , i.e., b_1 , on Y_1 and Y_2 is ambiguous. These possible interpretations obtain: 1) $b_{11} = -b_{21}$, such that the coefficients have equal but opposite effects on the dependent measures; 2) $b_{11} = b_1$, $b_{21} = 0$, such that b_1 has no effect on Y_2 ; 3) $b_{11} = 0$, $b_{21} = b_1$, such that b_1 has no effect on Y_1 ; or 4) any other combination of b_{11} and b_{21} that sustains their difference at b_1 . In other words, the specific effects of b_1 on Y_1 and Y_2 cannot be disentangled using a difference score as the dependent variable.

Last, Edwards (1995) argues that regressing a difference score or PSI on a set of exogenous variables “transforms an inherently multivariate model into a univariate model” (p. 310) that evaluates only one dependent variable ($Y_1 - Y_2$) instead of two. Rather than estimating equation (4), Edwards suggests estimating equations (5) and (6) jointly so that the effects of X on Y_1 and Y_2 can be directly assessed, correlations between residuals can be examined, multivariate tests of significance can be performed for the joint effects of X on Y_1 and Y_2 , and the model can be adjusted to reflect a possible link between Y_1 and Y_2 . The result will be to capture the effect of X on both dependent measures in the same regression estimation.

Given these methodological weaknesses of dependent measure difference scores, Edwards (1995) proposes an alternative approach predicated on three principles. First, since components of difference scores and PSIs represent conceptually distinct constructs, they should remain distinct; for example, subordinate and supervisor perceptions should be differentiated as Y_1 and Y_2 (or some analogous notation). Second, models evaluating congruence as dependent variables, such as those in this study, should be analyzed jointly in order to decompose the respective effects of each predictor on Y_1 and Y_2 , and facilitate multivariate tests of the association between the predictors and Y_1 and Y_2 . Finally, hypotheses predicting congruence should postulate a joint prediction of component measures, including explicit statements of any *a priori* constraints that are believed to exist.

Pursuant to these general principles, Edwards (1995) thus distinguishes his approach to the prediction of congruence based on:

1) whether congruence is assessed along a single dimension or multiple dimensions; and 2) whether the effects of the independent variables on congruence are considered directional or nondirectional. For the latter, directional analysis has employed an algebraic difference or the sum of

algebraic differences across multiple dimensions and nondirectional analysis has used indices that discard information such as the absolute difference, squared difference or some other PSI. Table 1 is taken from Edwards (1995, p. 311) and combines these distinctions in a two-way classification encompassing the general equation forms for predicting directional and nondirectional effects along single and multiple dimensions.

Directional Effects: Single Dimension

Generalizing equations (5) and (6) from Edwards' (1995) work yields the equations in the upper left quadrant in Table 1. The equations facilitate the testing of the relative effects of X_j on Y_1 and Y_2 . Constraints of interest—that is, relationships between the coefficients—can be tested using multivariate regression analysis, Wilks' Λ and its associated approximate F-test (Rao, 1959). If the test does not approach acceptable levels of significance, then the relevant hypotheses regarding the relation between coefficients b_{1j} and b_{2j} may be considered tenable. As well, the analysis should also examine whether the b_{1j} and b_{2j} individually differ from 0.

Directional Effects: Multiple Dimensions

As Edwards (1995) points out, directional effects on k dimensions (where $k = 1$ to r) must be estimated twice or $2r$ times, yielding $2r$ equations

Table 1. EQUATIONS FOR PREDICTING DIRECTIONAL AND NONDIRECTIONAL EFFECTS ON CONGRUENCE
ALONG SINGLE AND MULTIPLE DIMENSIONS (Edwards, 1995)

Directional effects	Nondirectional effects
Single dimension	
$Y_1 = b_{10} + b_{11}X_1 + \dots + b_{1q}X_q + e_1$	$Y_1 = b_{10} + b_{11}X_1 + \dots + b_{1q}X_q + b_{11q+1}W + b_{11q+2}WX_1 + \dots + b_{112q+1}WX_q + e_1$
$Y_2 = b_{20} + b_{21}X_1 + \dots + b_{2q}X_q + e_2$	$Y_2 = b_{20} + b_{21}X_1 + \dots + b_{2q}X_q + b_{2q+1}W + b_{2q+2}WX_1 + \dots + b_{22q+1}WX_q + e_2$
Multiple dimensions	
$Y_{11} = b_{101} + b_{111}X_1 + \dots + b_{1q1}X_q + e_{11}$	$Y_{11} = b_{101} + b_{111}X_1 + \dots + b_{1q1}X_q + b_{11q+111}W + b_{11q+211}WX_1 + \dots + b_{112q+111}WX_q + e_{11}$
$Y_{21} = b_{201} + b_{211}X_1 + \dots + b_{2q1}X_q + e_{21}$	$Y_{21} = b_{201} + b_{211}X_1 + \dots + b_{2q1}X_q + b_{2q+211}W + b_{2q+311}WX_1 + \dots + b_{22q+211}WX_q + e_{21}$
.	.
.	.
.	.
$Y_{1r} = b_{10r} + b_{11r}X_1 + \dots + b_{1qr}X_q + e_{1r}$	$Y_{1r} = b_{10r} + b_{11r}X_1 + \dots + b_{1qr}X_q + b_{11q+2r}W + b_{11q+3r}WX_1 + \dots + b_{112q+1r}WX_q + e_{1r}$
$Y_{2r} = b_{20r} + b_{21r}X_1 + \dots + b_{2qr}X_q + e_{2r}$	$Y_{2r} = b_{20r} + b_{21r}X_1 + \dots + b_{2qr}X_q + b_{2q+3r}W + b_{2q+4r}WX_1 + \dots + b_{22q+1r}WX_q + e_{2r}$

Note. In the equations for a single dimension, Y_1 and Y_2 are the component dependent variables, the b_{ij} are unstandardized coefficients for the regression of Y_i on X_j , and W is a dummy variable that equals 0 when $Y_1 > Y_2$ and equals 1 when $Y_1 < Y_2$. In the equations for multiple dimensions, Y_{1k} and Y_{2k} are the component dependent variables measured on the k th dimension, the b_{ijk} are unstandardized coefficients for the regression of Y_{ik} on X_j for the k th dimension, and W_k is a dummy variable that equals 0 when $Y_{1k} > Y_{2k}$ and equals 1 when $Y_{1k} < Y_{2k}$. Note that i ranges from 1 to p (which, for these equations, equals 2), j ranges from 1 to q (representing the number of X variables), and k ranges from 1 to r (representing the number of dimensions).

in order to determine all coefficients b_{1qr} and b_{2qr} (see lower left quadrant, Table 1). Hence, the effects of X_j between dimensions and across dimensions can be compared by testing the appropriately matched sets of coefficients. For example, tests can be conducted to examine symmetrical effects between b_{1qr} predicting Y_{1k} , between b_{2qr} predicting Y_{2k} , or between sets of b_{1qr} and b_{2qr} .

Nondirectional Effects: Single Dimension

Before generalizing to the right quadrants of Table 1, it is necessary to derive the nondirectional effects equations. Considering the nondirectional difference score equation

$$(8) |Y_1 - Y_2| = b_0 + b_1X + e$$

Edwards (1995) argues that equation (8) confounds the effects of X on Y_1 and Y_2 and that this equation can not be rewritten as a linear function of Y_1 and Y_2 , as in equations (5) and (6). Edwards resolves this problem by adding a dummy variable to equation (8) to yield:

$$(9) Y_1 - Y_2 = b_0(1 - 2W) + b_1(1 - 2W)X + e$$

where $W = 0$ when $Y_1 > Y_2$, and $W = 1$ when $Y_1 < Y_2$. Clearly, W changes the signs on the coefficients depending on whether $Y_1 - Y_2$ is positive or negative. Thus, Edwards has constructed an equation relating X to $Y_1 - Y_2$ such that when the dependent difference is positive, or $Y_1 > Y_2$, it effectively equals $b_0 + b_1X$ but, when $Y_1 < Y_2$ giving a negative dependent variable, it equals $-b_0 - b_1X$. Overall, equation (9) yields the same effect as using $|Y_1 - Y_2|$ as the dependent variable.

However, by construction equation (9), expanded to give

$$(10) Y_1 - Y_2 = b_0 + b_1X - 2b_0W - 2b_1WX + e$$

imposes two constraints: 1) the coefficient on W is twice as large as the intercept but opposite in sign; and 2) the coefficient on WX is twice as large as the coefficient on X but opposite in sign. Dropping these constraints, Edwards gives the unconstrained version, equation (11):

$$(11) Y_1 - Y_2 = b_0 + b_1X + b_2W + b_3WX + e,$$

standard F-test to compare R^2 s; if the R^2 of (11) is significantly larger than that of (10), it can be concluded that the constraints are invalid.

Finally, because the effects of X on Y_1 and Y_2 remain confounded and no information is provided regarding the coefficients relating X , W , and WX to Y_1 and Y_2 , Edwards proposes the following equations:

$$(12) Y_1 = b_{10} + b_{11}X + b_{12}W + b_{13}WX + e_1$$

$$(13) Y_2 = b_{20} + b_{21}X + b_{22}W + b_{23}WX + e_2 .$$

Indeed, estimated coefficients from these two equations can be tested to examine the effects of X on Y_1 and Y_2 for cases where $Y_1 > Y_2$ relative to cases where $Y_1 < Y_2$. That is, for $Y_1 > Y_2$, the effects of X on Y_1 and Y_2 are given by b_{11} and b_{21} , respectively; for $Y_1 < Y_2$, the effects of X on Y_1 and Y_2 are given by the sums $(b_{11} + b_{13})$ and $(b_{21} + b_{23})$, respectively.

Edwards generalizes to multiple X_q s in the upper right quadrant of Table 1. The coefficients on the X_j , W , and WX_j for Y_1 and Y_2 can be compared across equations and the differences in the effects of X_j for cases where $Y_1 > Y_2$ versus $Y_1 < Y_2$ can be examined by testing whether the coefficients on the WX_j differ from 0. A significant coefficient on the latter indicates that the influence of the given X_j changes depending on whether Y_1 is greater or less than Y_2 . Furthermore, Edwards indicates that a multivariate omnibus test may be conducted for the WX_j coefficients for

both equations jointly, using follow-up tests to determine which of these coefficients are significantly greater than 0. As well, Edwards presents other tests to examine various sets of coefficients that might be of specific interest.

Nondirectional Effects: Multiple Dimensions

Edwards (1995) indicates that the nondirectional effects of the coefficients can be evaluated across multiple r dimensions, again yielding $2r$ total equations. The effects of the X_j on the Y_{1k} and Y_{2k} may be compared by testing whether these coefficients are equal—or otherwise related—across the r dimensions.

C. An Alternative to Difference Scores as Dependent Variables: Multivariate Regression, an Intermediary Analysis

Edwards' (1995) simultaneous equation method of analyzing dependent congruence variables, as presented, involves complex econometric estimation techniques. Fortunately, an interim analytical approach is available which, dependent on its results, may eliminate the need to conduct simultaneous equation regressions. The statistical technique involved is multivariate regression, which facilitates the prediction of a set of dependent measures by a related set of independent measures.

To understand multivariate analysis, consider the classical univariate linear model:

$$(14) \quad Y = b_0 + b_1X_1 + b_2X_2 + \dots + e$$

where Y is a single endogenous measure, the X_j s are interval-level predictors with fixed values, the b_j s are unstandardized regression coefficients, and e is the set of independent disturbances with zero mean and variance $\text{VAR}(e)$ at each combination of levels of the X_j s. Building on this equation, then, the multivariate regression model encompasses a “series of regression equations of the [classical linear form], where each equation has a *different* left-hand variable, but the *same* right-hand variables” (Dwyer, 1983, p. 165). These univariate equations are most efficiently generalized in matrix algebra notation, to yield the multivariate regression model:

$$(15) \quad \mathbf{Y} = \mathbf{XB} + \mathbf{e}$$

where \mathbf{Y} is an $(n \times q)$ matrix of dependent variables such that n cases correspond to q dependent variables, \mathbf{X} is an $(n \times p)$ matrix of p independent variables, \mathbf{B} is the $(p \times q)$ matrix of coefficients to be estimated, and \mathbf{e}

represents the (n x q) matrix of disturbances. The statistical effect of this estimation technique, as Dwyer (1983, p. 178) summarizes, is that the:

multivariate model with q dependent variables yields the same sample estimates of population coefficients as a series of q multiple regressions—one for each dependent variable regressed on the same set of p independent variables . . . [while] the standard errors of individual regression coefficients in the multivariate model are the same as those that would be obtained from the univariate multiple regression including the coefficient.

To clarify the preceding notation pursuant to the data of this analysis, consider the case where n=165 subjects, q=2 dependent variables, and p=5 independent variables. The matrix structure would be:

$$\begin{bmatrix} Y_1 & Y_2 \end{bmatrix} = \begin{bmatrix} 1 & X_1 & X_2 & X_3 & X_4 & X_5 \end{bmatrix} \bullet \mathbf{B} + \begin{bmatrix} e_1 & e_2 \end{bmatrix}$$

or

$$\begin{bmatrix} Y_1(1) & Y_2(1) \\ Y_1(2) & Y_2(2) \\ Y_1(3) & Y_2(3) \\ Y_1(4) & Y_2(4) \\ Y_1(5) & Y_2(5) \\ \cdot \\ \cdot \\ \cdot \\ Y_1(n) & Y_2(n) \end{bmatrix} = \begin{bmatrix} 1 & X_1(1) & X_2(1) & \dots & X_5(1) \\ 1 & X_1(2) & X_2(2) & \dots & X_5(2) \\ 1 & X_1(3) & X_2(3) & \dots & X_5(3) \\ 1 & X_1(4) & X_2(4) & \dots & X_5(4) \\ 1 & X_1(5) & X_2(5) & \dots & X_5(5) \\ \cdot \\ \cdot \\ \cdot \\ 1 & X_1(n) & X_2(n) & \dots & X_5(n) \end{bmatrix} \begin{bmatrix} b_{11} & b_{12} \\ b_{21} & b_{22} \\ b_{31} & b_{32} \\ b_{41} & b_{42} \\ b_{51} & b_{52} \end{bmatrix} + \begin{bmatrix} e_1(1) & e_2(1) \\ e_1(2) & e_2(2) \\ e_1(3) & e_2(3) \\ e_1(4) & e_2(4) \\ e_1(5) & e_2(5) \\ \cdot \\ \cdot \\ \cdot \\ e_1(n) & e_2(n) \end{bmatrix} .$$

This expanded notation shows that a set of two equations for $n=165$ cases will be estimated:

$$(16) Y_1(i) = b_{11} + b_{21}X_2(i) + \dots b_{51}X_5 + e_1(i)$$

$$(17) Y_2(i) = b_{12} + b_{22}X_2(i) + \dots b_{52}X_5 + e_2(i)$$

where $j = 1$ to 165.

Estimation of the b s in multivariate regression, as in univariate regression, is predicated on the least squares method. Again, the estimates obtained from multivariate regression are identical to the estimates obtained from a series of univariate multiple regression models (Dwyer, 1983). However, the advantage of multivariate analysis is the “capacity to calculate confidence intervals, or test null hypotheses, involving coefficients from all the univariate equations” (Dwyer, 1983, p. 167). That is, multivariate regression permits testing the hypothesis that all independent variables *jointly*, i.e. as a set, are significant predictors of the set of dependent variables being evaluated. As well, this approach facilitates comparative tests of *best fit* between constrained and unconstrained models. Thus, the coefficient constraints implied by difference scores and PSIs constitute the

null hypotheses to be compared statistically to the unconstrained model implied by the independent polynomial variables.

Of particular interest in this analysis is the test of best fit between two models predicated on Wilks' Λ , also known as the multivariate U-statistic (Dwyer, 1983). The U-statistic is calculated as the ratio of determinants of the unconstrained and constrained models, respectively, in which the determinants are comprised of the set of error variances and covariances calculated from the multivariate regression. Because the unconstrained models in this analysis include four more predictors than the constrained difference-score models, they necessarily explain at least as much variance in the dependent variables as the constrained models; alternatively, the residual matrix of an unconstrained model can never exceed that of a constrained model, given that the latter model is nested within the unconstrained one. Hence, a ratio approaching unity suggests that the removal of the regression constraints does not improve explanatory power (Dwyer, 1983).

Further, to test the probabilistic hypotheses of relative fit between two or more models, Rao (1959) has developed a procedure in which the U-statistic can be transformed into an F ratio. This transformation enables the

evaluation of the probability of the F ratio as an approximation of the likelihood of the U-statistic to determine if the null hypothesis of no difference between models is to be rejected. Although fairly complex, this approximation is conveniently available in many computer software programs and provides the probabilistic basis for choosing one model as superior to alternative models.

Overall, multivariate regression engenders important information regarding the viability of unconstrained polynomial regression models and subsequently facilitates the statistical comparison of competing nested models. The initial procedure to be conducted begins with the estimation of Wilks' Λ and its associated F approximation, assessing the null hypothesis that the five coefficients in an unconstrained quadratic equation are not different from zero—that is, do not predict the two dependent congruence measures. Indeed, a nonsignificant F ratio indicates that the right-hand polynomial variables are not useful as explanatory variables. In other words, this outcome renders polynomial regression inefficacious as a congruence measurement technique for predicting the corollary dependent measures, supervisor and subordinate perceptions, and further PMR is unwarranted.

Conversely, where the F ratio is statistically significant, the unconstrained polynomial model constitutes the benchmark functional form to test against the various constrained difference-score models. After determining which difference-score forms, if any, are significant predictors of the dependent measures via multivariate regression, the approximation F ratio between the unconstrained and constrained congruence measurements—polynomial regression and difference score forms, respectively—is computed. If this index is significant, it indicates that the coefficient constraints of the difference score(s) are rejected; hence, the predictive power of polynomial regression and its three-dimensional curvilinear interpretive advantages are preferable to the linearly limited difference score equations.

In sum, multivariate regression entails an intermediary stage of analysis because Edwards' (1995) complex simultaneous equation analysis is not mandated without the appropriate outcomes. That is, where the independent variables of the multivariate polynomial model are not joint predictors of both dependent measures, a subsequent multivariate analysis of simultaneous equation estimation using the polynomials will provide no additional meaningful information about the relationship. Moreover, where

the F ratio is significant, but subsequent univariate regressions indicate that one of the dependent variables is not significantly predicted by the independent polynomial variables, simultaneous estimation will not further illuminate the relationship between congruence outcomes and congruence predictors. In these cases, further multivariate analysis is not warranted.

D. Conclusion

This section has described the new methodological approaches to congruence analysis that Edwards has developed and promoted since 1991. This study will apply univariate polynomial regression to analyze the effects of X_j , Y_j , X_j^2 , $X_j Y_j$ and Y_j^2 independent variables on Z_j outcomes and compare these against the statistical and constraint efficacy of difference scores as predictors in assessing the main effects portion of the model. Secondly, mediation will be evaluated: multivariate regression of the dependent measures on polynomials will be assessed and this functional form, where significant, will be compared to the forms implied by difference scores. Finally, Edwards' (1995) simultaneous estimation, as used to analyze the dimensional influence and directional/hondirectional effects of Y_j on outcomes X_1 and X_2 will be applied to predict the dependent (mediator) variables of interest. The next section provides an overview of

the estimation steps and procedures to be utilized in analyzing the model presented.

IV. Parameter Estimation and the Conceptual Model

A. The General Structural (Mediated) Model

As previously set forth, the existence of two distinct psychological processes between different sources of supervisor-subordinate similarity poses the central structural issue in the mediation model. In essence, this empirical investigation seeks to determine if actual similarity in the dyad asserts a direct influence on a set of outcomes through a separate process (cognitive stereotyping) or whether actual similarity affects individual employee outcomes only as mediated through dyadic perceptual (affective) congruence. Posed alternatively, the existence of significant coefficients for paths c and d in model 1 is questioned. In addition, since the relative predictive potency of polynomial multiple regression and difference scores/PSIs is of critical interest here, statistical comparisons of the efficacy of the functional forms implied by both approaches must also be conducted.

Testing Mediation: Conventional Regression

The conventional regression approach to the analysis of a mediated relationship is presented in Baron and Kenny (1986). Concisely, the three regression equations used are³:

$$(18) Md = f[IV]$$

$$(19) DV = f[IV]$$

$$(20) DV = f[Md; IV]$$

where Md represents the mediator variable, IV represents the independent or mediated variable, DV represents the dependent variable, and the normal regression parameters and error terms are assumed for each equation. In text, equation (18) regresses the mediator on the IV because in this simplest mediated relationship, the IV must predict the mediator:

$$IV \longrightarrow Md \longrightarrow DV.$$

In the second equation, the IV is expected to significantly predict the DV, or

³ Because it has already been established that the mediators are significant predictors of the dependent measures it is not necessary to repeat this regression. However, if this were not known, and equation would have to be estimated: $DV = f[Md]$.

the path c main effect. The third equation regresses the M_d on the DV in a first block; in the next block, the independent variable is added to the equation and the change in R^2 is evaluated via an F-test. As the independent variable is added to the third equation, the change in R^2 will be not be statistically significant if full mediation exists. That is, the inclusion of the IV in the structural linkage will not significantly explain any additional variance in the DV. Hence, the independent variable has no direct effect on the DV and is mediated by an intervening variable.

Step 1: The Main Effects of PMR and Difference Scores/PSIs

In anticipation of analyzing the mediation processes in the conceptual model, an evaluation of the respective rigor of the polynomial and difference-score models is essential. Importantly, where the polynomial regressor sets are not significant, continuation of the mediation analysis is vacuous given the purpose. Thus, it is both necessary and sufficient to find that polynomial regressor models are significant antecedents of the prescribed individual outcomes before further comparison with difference scores is warranted in this analysis; and where polynomial regression is not statistically superior to difference-score modeling, no basis exists for the utilization of polynomial multiple regression. Thus, the incipient, essential step in this analysis will be the

estimation of main effects models—paths a and c —and the appropriate best fit comparisons between regression techniques. The results obtained will, in part, concurrently describe the coefficients and their significance levels to be derived from equation (19). The equations to be estimated follow these general forms:

$$(21) Z_j = b_0 + b_1 Y_1 + b_2 Y_2 + b_3 Y_1^2 + b_4 Y_1 Y_2 + b_5 Y_2^2$$

$$(22) Z_j = b_0 + b_1 X_1 + b_2 X_2 + b_3 X_1^2 + b_4 X_1 X_2 + b_5 X_2^2$$

$$(23) Z_j = b_0 + b_1(\text{DIFF SCORE-PSI})$$

in which Z_j represent the dependent individual outcomes of model 1, the b s refer to the constant and regression coefficients, Y_1 and Y_2 represent the predictors for subordinate and supervisor actual similarity characteristics, respectively, X_1 and X_2 represent the predictors for subordinate and supervisor perceptual congruence variables, and DIFF SCORE-PSI indicates the various difference measures previously described.

After the standard and adjusted R^2 s are calculated, it will be necessary to determine if the constraints of the difference scores are rejected in favor of the unconstrained polynomial sets or whether the latter are not more robust than the difference score indices. This will be determined through a set of three alternative F-tests measuring whether the differences between the

polynomial and difference score R^2 s are significant. Since this analysis is exploratory, 3 versions of the F-test will be computed in an effort to account for the implied constraints in the difference scores, which changes the numerator degrees of freedom in the F-test formula and affects significance levels. These 3 formulas are explained more fully in Appendix A.

Step 2: Predicting the Mediating Variables in Equation (14)

The next stage of the analytical procedure involves the prediction of the perceptual congruence mediators by the actual similarity polynomial sets and the competing difference-score/PSI models via equation (18). Again, perceptual congruence involves two dependent variables—from the supervisor and subordinate sources—and will be analyzed through the multivariate regression method described previously. The testing procedure will first determine whether the unconstrained polynomial equations are effective in predicting perceptual congruence, as measured in the probability of the approximated F ratio (Dwyer, 1983; Rao, 1959). Then, the superiority of polynomial regressors relative to difference-score regressors as explanatory antecedents to the pairs of perceptual congruence measures will be examined; the emergent best-fit or functional form will

thus be clarified. For a given set of dependent congruence measures X_1 and X_2 , the equations to be estimated are:

$$(24) [X_1 X_2] = b_0 + b_1(\text{DIFF SCORE/PSI})$$

$$(25) [X_1 X_2] = b_0 + b_1Y_1 + b_2Y_2 + b_3Y_1^2 + b_4Y_1Y_2 + b_5Y_2^2$$

again where the b s refer to the constant and regression coefficients, Y_1 and Y_2 represent the predictors for subordinate and supervisor actual similarity characteristics, respectively, X_1 and X_2 represent the predictors for subordinate and supervisor perceptual congruence variables, and DIFF SCORE/PSI indicates the various difference variables previously described.

Step 3: Determining Mediation, Equation (20)

The final stage in determining mediation entails the estimation of equation (16) and assessment of the significance of the change in the R^2 indices. The meaningful set of polynomial variables measuring each polynomial index X_j is first entered as a block, predicting each individual outcome (Z_j) variable separately. Then, for each actual similarity index Y_j , the set of associated polynomials is entered into the regression and the change in the significance level of R^2 is observed. A nonsignificant increase in the incremental change in R^2 indicates the existence of a fully mediated model.

Specifically, the set of equations to be estimated is a specification of equation (20) of this section: $DV = f[Md; IV]$. The following equation obtains in the analysis of the mediated model:

(BLOCK 1)

$$(26) Z_i = \alpha_0 + [\delta_1 X_1 + \delta_2 X_2 + \delta_3 X_1^2 + \delta_4 X_1 X_2 + \delta_5 X_2^2] +$$

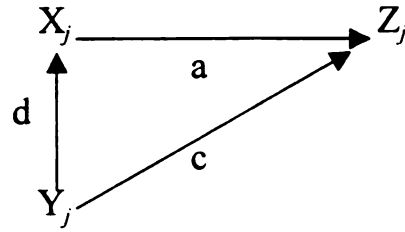
(BLOCK 2)

$$[\alpha_1 Y_1 + \alpha_2 Y_2 + \alpha_3 Y_1^2 + \alpha_4 Y_1 Y_2 + \alpha_5 Y_2^2]$$

where X_1 and X_2 , and Y_1 and Y_2 , are the mediator and mediated variables, respectively, and the δ s and the α s are the associated regression coefficient estimates. BLOCK 1 is entered first in a hierarchical regression, BLOCK 2 is then entered, and the change in R^2 is observed.

Step 4: Testing for Partial Mediation

Where full mediation is not found, tests should be performed to determine if the model is partially mediated. That is, the independent variable may influence the outcome variable both directly and indirectly in a partially mediated model. The general form of this “triangular” structure is presented in the path diagram that follows below:



Here, paths a , c , and d are all significant coefficients.

To determine the existence of a partial mediation model, the difference between the main effects R^2 for the actual similarity polynomials and the increment to R^2 in equation (20)—or equation (26)—is observed. If the difference is large, it can be inferred that partial mediation is present. More formally, a confidence interval can be constructed around the main effects R^2 . The increment to R^2 in the mediation equation (20) is then examined to see if it falls below the lower bound of this interval. In the case where this occurs, partial mediation is present. To estimate the standard error of R^2 so that the confidence interval may be calculated, Kendal and Stuart (1973) have derived the formula for the variance of the R^2 index.⁴

⁴ The formula is: $\sigma^{R^2} = [(4R^2(1 - R^2)^2)/n]^{1/2}$

Step 5: A Visual and Mathematical Interpretation of Main Effects of the Mediation Model

The discovery of a significant relation between any perceptual congruence measure (and actual similarity where mediation is not found) and an individual outcome can be clarified visually through multidimensional graphing and response surface methodology (Box and Draper, 1987). To illustrate the utility of this method, consider a hypothetical example in which individual outcome Z_1 is significantly predicted by a quadratic equation estimating the effects of perceptual congruence:

$$(27) Z_1 = b_0 + b_1X_1 + b_2X_2 + b_3X_1^2 + b_4X_1X_2 + b_5X_2^2 + e$$

Then graphing this estimated equation using SYGRAPH, the curvilinear relationship between Z_1 and the X_1 and X_2 independent variables is revealed geometrically, as Figure 2 shows. Further, important points and lines of interest, including the stationary point, first and second principal axes, the $X_1 = X_2$ line, the $X_1 = -X_2$ line, and so forth can be calculated using formulas presented in Edwards and Parry (1993).

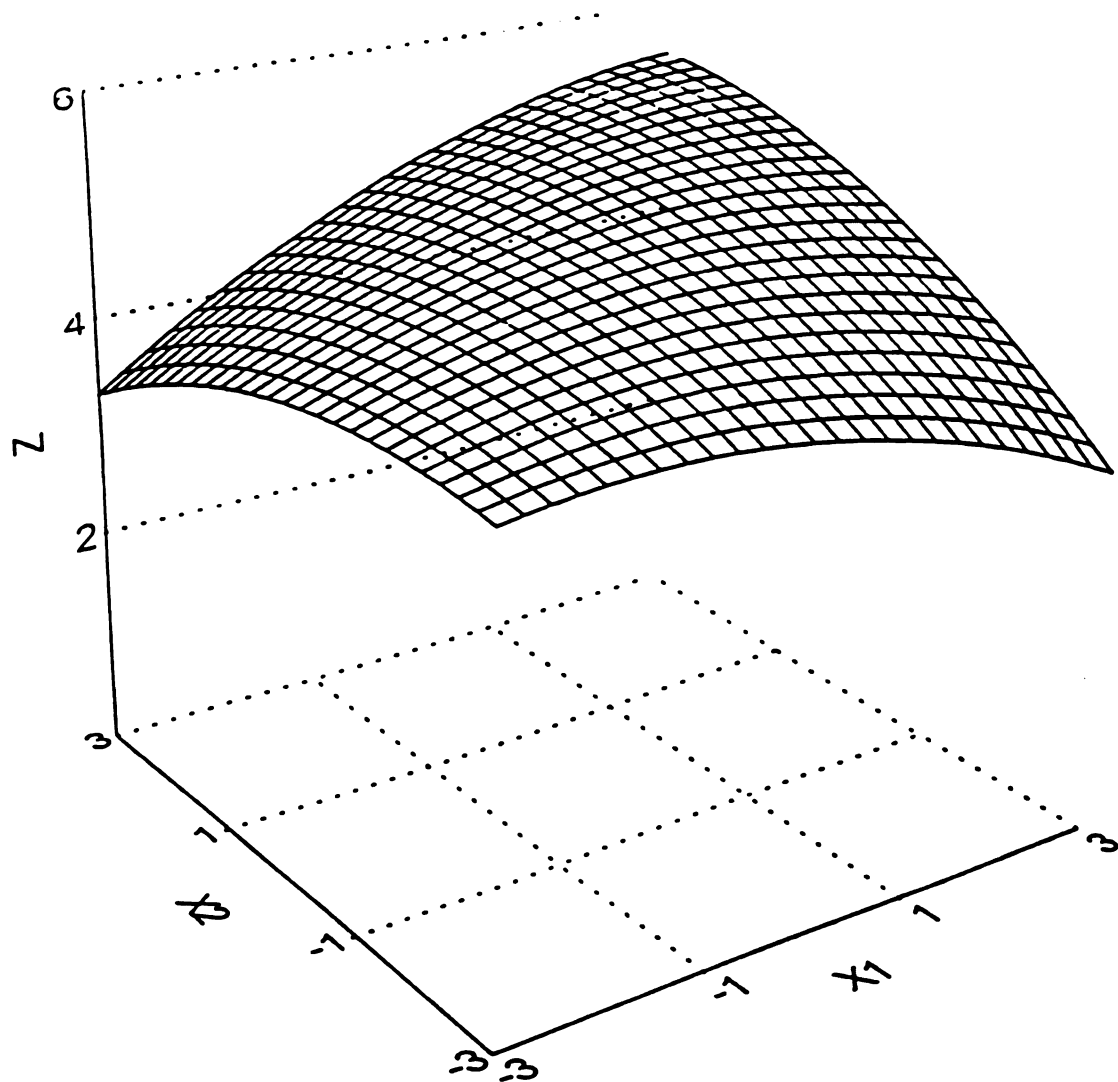


Figure 2. EXAMPLE OF 3-DIMENSIONAL GRAPH

Step 6: Simultaneous Equation Estimation of the Mediators

The final stage of the statistical analysis is intended to delineate the relationships between the perceptual congruence dependent measures and those actual similarity polynomials that have significantly predicted them. Results from the multivariate regression will have already established which models warrant further examination with simultaneous estimation.

Reiterating, variables Y_j are the mediated independent regressors in equation (18), expanded from difference score form into Edwards' (1993a) polynomial variable sets. Taking these variables together, the empirical equivalent of equation (18) for directional, single dimension analysis is:

$$(28) X_1 = b_{10} + b_{11}Y_1 + b_{12}Y_2 + b_{13}Y_1^2 + b_{14}Y_1Y_2 + b_{15}Y_2^2$$

$$(29) X_2 = b_{20} + b_{21}Y_1 + b_{22}Y_2 + b_{23}Y_1^2 + b_{24}Y_1Y_2 + b_{25}Y_2^2$$

where X_1 and X_2 are the subordinate and supervisor response for each perceptual congruence variable, respectively, and the b_q are the regression effects for each Y_j regressor, which include linear terms Y_1 and Y_2 , quadratic terms Y_1^2 and Y_2^2 , and a multiplicative term Y_1Y_2 . Note that these equations extend those presented in the upper left quadrant of Table 1.

Where a single dimension and nondirectional analysis is warranted, the following equation represents the first equation in mediated regression, as derived from equations (12) and (13):

$$(30) \quad X_1 = b_{100} + b_{110}Y_1 + b_{120}Y_2 + b_{130}Y_1^2 + b_{140}Y_1Y_2 + b_{150}Y_2^2 + b_{16}W + b_{111}WY_1 + b_{121}WY_2 + b_{131}WY_1^2 + b_{141}WY_1Y_2 + b_{151}WY_2^2 + e_1$$

$$(31) \quad X_2 = b_{200} + b_{210}Y_1 + b_{220}Y_2 + b_{230}Y_1^2 + b_{240}Y_1Y_2 + b_{250}Y_2^2 + b_{260}W + b_{211}WY_1 + b_{221}WY_2 + b_{231}WY_1^2 + b_{241}WY_1Y_2 + b_{251}WY_2^2 + e_2$$

In these latter equations, note that Y_1 and Y_2 represent the subordinate's and supervisor's demographic characteristics, respectively, Y_1^2 and Y_2^2 represent the subordinate's and supervisor's characteristics squared, and Y_1Y_2 represents the cross-product of their characteristics, consistent with Edwards' polynomial multiple regression. W is the dummy variable attached to all combinations of Y variables which equals 0 when $X_1 > X_2$ and equals 1 when $X_1 < X_2$; b_{100} and b_{200} represent the constants, while all other b s represent the estimated coefficient effects of the Y variables on X_1 and X_2 , respectively. Equations (30) and (31) are based on Edwards' (1995) generalized version of single dimension, nondirectional effects equations in the upper right quadrant of Table 1. Finally, the effect of the Y 's on X_1 and X_2 proceed from the same logic articulated by Edwards (1995) regarding simultaneous estimation. For

example, where $X_1 > X_2$, the total effect of the linear Y_1 on X_1 is b_{110} , while where $X_1 < X_2$, the total effect of the linear Y_1 on X_1 is $(b_{110} + b_{111})$.

B. Conclusion

It is important to clarify this mediated regression analysis as three separate estimation procedures. Only step 5 involves simultaneous estimation: for single dimension/directional effects, equations (28) and (29) are estimated simultaneously; for single dimension/nondirectional effects, equations (30) and (31) are estimated simultaneously. The interpretation of the results of this three-step process involves the inspection of the R^2 for each equation. In general, to find a fully mediated relationship, the R^2 in equation (25) must be statistically significant; that is, the Y_j IVs for supervisor-subordinate actual similarity must predict the mediator variables X_1 and X_2 —supervisor and subordinate perceptions, respectively. Assuming, for now, that the R^2 s are significant, the results of equations (21) and (22) are then inspected. The polynomials estimating the effects of actual similarity characteristics and perceptual congruence must significantly predict the Z_j of interest. Finally, equation (26) is examined. To reveal full mediation, the change in R^2 after BLOCK 2 is added must be significant and, ideally, all α coefficients will fall below the .05 critical value while the δ coefficients will all exceed this level of significance. The

straightforward interpretation in this case is that supervisor-subordinate actual similarity has only an indirect effect on individual outcomes through the mediating perceptual congruence variables. Of course, if this does not occur, examination of the confidence interval around main effects R^2 s to detect partial mediation is essential.

An alternative, and more likely, interpretive task will be evaluation of the coefficients across all steps of the mediation regression equations where only subsets of the b s, α s and δ s are statistically significant. Such a result will present a complex network of interrelationships that can only be addressed on a case-by-case basis.

V. Procedure: The Survey Instrument and Variable Measurement

A. The Survey Instrument

The relevant question items for the child-care needs questionnaire mailed to employees are presented in Appendix B. Note that a parallel set of questions was posed to supervisors by telephone.

B. Independent and Dependent Variables: Factor Analysis

The independent variables consist of eight dichotomous gender-contrast variables, nominal level, with the remaining ones being measured on an interval or ratio scale. The actual similarity measures are constructed

as follows. Gender is coded 0 for males and 1 for females for both subordinates and supervisors. These are organized into specific contrasts such that four groups emerge:

- 1) Male supervisor/Male subordinate;
- 2) Male supervisor/Female subordinate;
- 3) Female supervisor/Male subordinate; and
- 4) Female supervisor/Female subordinate.

(Note that the fourth contrast is the salient gender variable in this study).

Cohen and Cohen (1983) demonstrate that where g groups exist, only $g - 1$ groups may be entered simultaneously as contrasts in a given regression equation. In this study, $g = 4$ so that at most, three contrasts can be analyzed concurrently; however, pursuant to the exploratory nature of this analysis, a variety of contrasts will be compared separately.

Next, organizational tenure is measured in years employed by the particular organization while position tenure is measured as consecutive years working in the same position. Education is recorded as 1 for less than high school diploma, 2 for a high school diploma, 3 for a post high school associates degree, 4 for a bachelor's degree, 5 for a master's degree and 6 for a doctorate.

In a previous analysis of this data set, an exploratory factor analysis was conducted to evaluate the conceptual rigor of the psychological constructs. Results demonstrated that for both subsamples, i.e. supervisors and subordinates, the appropriate items were strongly loaded on the hypothesized factors. The analysis was based on principle axis factoring with a varimax rotation. The loadings indicated a good fit between the items and their scales.

Perceptual congruence variables for both subordinates and supervisors are composed of parallel sets of items. The amount of *supervisor support for work/family conflict* is adapted from Fernandez's (1986) scale and consists of 4 items (see Appendix B, Q10:a,b,c,f). The reliability of this variable is measured at $\alpha = .68$ for employees and $.83$ for supervisors. *Attitudes toward managing work and child-care responsibilities* is adapted from Kossek's (1990) scale which was amalgamated from several other scales. It contains 6 items (Appendix B, Q8:a,c,e,f,g,h) and is reliable with $\alpha = .79$ for employee perceptions and $.87$ for supervisors. The construct *perceptions of child-care related absenteeism* is based on 3 items derived from Marquart's (1988) scale

(Appendix B, Q9:a,b,c) and is acceptably reliable for supervisors ($\alpha = .74$) and for subordinates ($\alpha = .68$).

The dependent variables in this analysis are also multi-item constructs. Indeed, because the dependent variables are perceptual and the distorting effects of common method variance are omnipresent—as are halo and leniency errors—three different measures of subordinate performance, attitudes, and absenteeism are included in the analysis.

Subordinate performance1 is taken only from informal supervisor assessment to avoid the central rating tendency normally influencing formal appraisal. This measure is an enhanced version of Fedor and Rowland's (1989) scale, and contains 7 items (Appendix B, Q11a-Q11g); it is reliable at $\alpha = .92$. *Subordinate performance2* is a parallel construct representing the responses of subordinates. Its reliability is $\alpha = .85$. Last, *subordinate performance3* is calculated as the unweighted mean of performance1 and performance2. This construct, reliable at $\alpha = .90$, is included in the analysis in an attempt to attenuate method variance and produce a more objective measure of subordinate performance. *Subordinate attitudes1 toward managing work and child-care responsibilities* contains the items mentioned above, while *subordinate*

attitudes2 describes a parallel construct based on subordinates' responses. *Subordinate attitudes3* is again an unweighted mean of its supervisor and subordinate components, and is reliable at $\alpha = .84$. Finally, supervisors' perceptions of *subordinate absenteeism1 generated by child-care difficulties* and *subordinate absenteeism2* are as already described, while *subordinate absenteeism3* is an unweighted mean construct reliable at $\alpha = .74$. The construct *employee organizational commitment* is composed of 2 items (Appendix B, Q10:e,g) and has a measured reliability of $\alpha = .53$. It is important to recognize that some variables are used as both independent and dependent measures for the purposes of analyzing distinct perceptual processes. However, no subordinate or supervisor variable used as an independent measure to predict the same variable.



THESIS

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**SUPERVISOR-SUBORDINATE DYADIC RELATIONS AND
PERSON-ENVIRONMENT FIT: AN ANALYSIS OF THE INTERFACE
OF PERCEPTUAL CONGRUENCE AND DEMOGRAPHIC
SIMILARITY, AND THEIR INFLUENCES ON INDIVIDUAL
WORK-FAMILY OUTCOMES**

VOLUME II

BY

VICTOR WAYNE NICHOL

A DISSERTATION

**SUBMITTED TO
MICHIGAN STATE UNIVERSITY
IN PARTIAL FULFILLMENT OF THE REQUIREMENT
FOR THE DEGREE OF**

DOCTOR OF PHILOSOPHY

SCHOOL OF LABOR AND INDUSTRIAL RELATIONS

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CHAPTER FIVE

PRESENTATION OF THE STATISTICAL RESULTS

I. Introduction

Chapter 5 of this dissertation systematically presents the results of the statistical analysis described in the previous chapter. As methodological convention dictates, general descriptive statistics will first be briefly reviewed to assess the demographic, mean and dispersion characteristics of the measures in the sample (section II-A). This will be followed by an examination of first-order correlations to highlight the existence—or absence—of interesting bivariate relationships (section II-B). Then to maintain consistency with the analytical steps set forth earlier that evaluate the components of the mediation model, the main effects results of the model will first be reported for (1) perceptual variables, (2) actual similarity variables, and (3) actual similarity gender contrasts (section III-A, B, and C, respectively). Importantly, the overall validity of the stated hypotheses will be examined. Note that for main effects categories (1) and (2), difference score regressors will be compared statistically to their associated set of polynomial regressors to determine whether polynomial models verifiably improve the variance explained in

the outcome variables relative to difference scores. Subsequently, the efficacy of the actual similarity polynomial sets (Y_1 , Y_2 , Y_1^2 , Y_1Y_2 , Y_2^2) and gender contrasts as predictors of the mediator variables (X_1 , X_2) will be reported (section IV-A, B). After determining which models are then eligible, results for full mediation and partial mediation tests will be presented and examined in section V-A. The chapter will conclude with a broad overview and summary of important findings (section VI).

II. Structural and Statistical Characteristics of Sample Variables

A. Descriptive Statistics: Characteristics of the Sample

The data for this analysis were collected from two mid-western hospitals. The survey instrument was coded so that subordinate responses gathered through a mailed questionnaire could be matched with their supervisor's responses obtained through a phone survey. The subordinate mail survey yielded a 52% response rate and 186 useable, i.e. complete, cases. The rate of supervisor response approached 88% and produced some 316 cases. For purposes of this study, the number of cases used in the analysis ranges from 141 to 184, representing at most 122 supervisors. Hence, there is little response dependence bias for supervisor perceptions of subordinates.

The employee sample is composed primarily of females, at 92%, who are predominately nurses and technical medical staff. The supervisor sample is 43% female, encompassing a more balanced managerial gender distribution. Employee tenure with their organization is a reasonably long mean of 8.1 years, with 38% having less than or equal to 5 years. Employee position tenure averages 5.5 years. In contrast, supervisor mean tenure is 12.9 years with 22.6% at or below 5 years, and the mean position tenure is 6 years. As well, supervisors possess substantially more education with a mean exceeding the bachelors level (4.2, with 2 indicating a high school diploma, 3 indicated an associates degree, 4 reflecting a college degree, and so forth); subordinates' average education exceeded the associates degree (3.5) with 44.1% holding a high school diploma.

Table 2 shows the descriptive statistics for the primary variables examined in the sample, broken down by variable type. Beginning with the psychological variables—or constructs—it appears that the average perceptions of employee performance and attitudes toward integrating work-family conflict exceed the scale center—that is, 3.000—for both supervisors and subordinates. That is, both supervisors and subordinates view subordinates' performances and attitudes as being only moderately

Table 2. DESCRIPTIVE STATISTICS FOR PRIMARY VARIABLES IN THE STUDY

PSYCHOLOGICAL						DEFINITION OF PSYCHOLOGICAL VARIABLE
VARIABLE	MEAN	N	SD	MIN	MAX	
MSPERF	4.108	316	.646	2.286	5.000	Supervisor View of Subordinate's Performance
MPERF	4.250	180	.464	3.143	5.000	Subordinate's View of Self-Performance
MPERFORM	4.202	180	.418	2.857	5.000	Unweighted Mean: (MSPERF + MPERF)/2
MSSUPP	4.241	316	.413	3.000	5.000	Supervisor Self-View of Supervisor's Supportiveness for Subordinate
MESUPP	3.749	183	.959	1.000	5.000	Subordinate View of Supervisor's Supportiveness for Subordinate
MSEFFT	3.669	316	.781	1.000	5.000	Supervisor View of Subordinate's Attitudes Toward Work and Family Integration
MEEFFT	3.711	184	.770	1.500	5.000	Subordinate View of Subordinate's Attitudes Toward Work and Family Integration
MEFFECTS	3.744	184	.569	1.833	5.000	Unweighted Mean: (MSEFFT + MEEFT)/2
MSATTWK	1.953	316	.870	1.000	5.000	Supervisor View of Subordinate's Work-Family Related Absenteeism
MEATTWK	1.917	184	.796	1.000	5.000	Subordinate View of Subordinate's Work-Family Related Absenteeism
MATTNDWK	1.908	180	.629	1.000	4.167	Unweighted Mean: (MSATTWK + MEATTWK)/2
EEORGCMT	1.678	180	.698	1.000	4.000	Subordinate View of Subordinate's Organizational Commitment
BACKGROUND						DEFINITION OF BACKGROUND VARIABLE
VARIABLE	MEAN	N	SD	MIN	MAX	
STENURE	12.856	316	5.939	1.000	29.000	Supervisor's Organizational Tenure in Years
TENURE	8.066	183	5.221	1.000	22.000	Subordinate's Organizational Tenure in Years
SPTENURE	6.037	316	4.089	1.000	22.000	Supervisor's Position Tenure in Years
PTENURE	5.514	183	4.326	1.000	18.000	Subordinate's Position Tenure in Years
SEDUCATN	4.222	316	.691	2.000	6.000	Supervisor's Education: 1<HS; 2=HS; 3=ASSC; 4=BA; 5=MA; 6=PHD
EDUCATN	3.486	183	1.021	2.000	6.000	Subordinate's Education: 1<HS; 2=HS; 3=ASSC; 4=BA; 5=MA; 6=PHD
DIFFERENCE SCORE	(PERCEPTUAL CONGRUENCE)					DEFINITION OF DIFFERENCE SCORE
	MEAN	N	SD	MIN	MAX	
ALGEBRAIC DIFFERENCE (X₁ - X₂)						SUPERVISOR - SUBORDINATE DYADIC DIFFERENCE BY PERCEPTUAL CONGRUENCE CONSTRUCT
ALGDSUPP	.509	183	1.041	-1.500	3.750	Different Views of Supportiveness: (SSPRSUPP - SPRSUPP)
ALGDEFF	.065	184	.952	-2.333	3.000	Different Views of Subordinate Attitudes: (SEFFECTS - EFFECTS)
ALGDATT	-.017	184	.991	-3.333	3.333	Different Views of Subordinate Absences: (SATTNDWK - ATTENDWK)

Table 2 (cont'd)

DIFFERENCE SCORE	(PERCEPTUAL CONGRUENCE)						DEFINITION OF DIFFERENCE SCORE
	MEAN	N	SD	MIN	MAX		
SUM OF ALGEBRAIC DIFFERENCE $\sum |X_{1i} - X_{2i}|$							
SALGSUPP	.482	186	.993	-1.500	4.000	Different Views of Supportiveness: $\sum (SSPRSUPP_i - SPRSUPP_i)$	
SALGEFFT	-.003	186	.885	-2.333	3.000	Different Views of Subordinate Attitudes: $\sum (SEFFECTS_i - EFFECTS_i)$	
SALGATTD	-.008	186	.946	-3.333	3.333	Different Views of Sub. Absences: $\sum (SATTNDWK_i - ATTENDWK_i)$	
DIFFERENCE SCORE	(PERCEPTUAL CONGRUENCE)						DEFINITION OF DIFFERENCE SCORE
	MEAN	N	SD	MIN	MAX		
ABSOLUTE DIFFERENCE $|X_1 - X_2|$							
ABSDSUPP	.886	183	.745	.000	3.750	Different Views of Supportiveness: $|SSPRSUPP - SPRSUPP|$	
ABSDEFF	.717	184	.597	.000	3.000	Different Views of Attitudes: $|SEFFECTS - EFFECTS|$	
ABSDATT	.748	184	.648	.000	3.333	Different Views of Sub. Absences: $|SATTNDWK - ATTENDWK|$	
SUM OF ABSOLUTE DIFFERENCE $\sum |X_{1i} - X_{2i}|$							
SABSSUPP	.482	186	.710	.000	4.000	Different Views of Supportiveness: $\sum |SSPRSUPP_i - SPRSUPP_i|$	
SABSEFFT	1.001	186	.532	.000	3.000	Different Views of Attitudes: $\sum |SEFFECTS_i - EFFECTS_i|$	
SABSATTD	.952	186	.621	.000	3.333	Different Views of Sub. Absences: $\sum |SATTNDWK_i - ATTENDWK_i|$	
SQUARED DIFFERENCE $(X_1 - X_2)^2$							
SQDSUPP	1.337	183	2.182	.000	14.063	Different Views of Supportiveness: $(SSPRSUPP - SPRSUPP)^2$	
SQDEFF	.868	184	1.384	.000	9.000	Different Views of Attitudes: $(SEFFECTS - EFFECTS)^2$	
SQDATT	.977	184	1.653	.000	11.000	Different Views of Sub. Absences: $(SATTNDWK - ATTENDWK)^2$	
SUM OF SQUARED DIFFERENCE $\sum (X_{1i} - X_{2i})^2$							
SSQDSUPP	1.653	186	2.233	.000	16.000	Different Views of Supportiveness: $\sum (SSPRSUPP_i - SPRSUPP_i)^2$	
SSQDEFFT	1.904	186	1.599	.000	9.000	Different Views of Attitudes: $\sum (SEFFECTS_i - EFFECTS_i)^2$	
SABSATTD	1.788	186	1.943	.000	12.000	Different Views of Sub. Absences: $\sum (SATTNDWK_i - ATTENDWK_i)^2$	

Table 2 (cont'd)

DIFFERENCE SCORE	(ACTUAL SIMILARITY)					DEFINITION OF DIFFERENCE SCORE
	MEAN	N	SD	MIN	MAX	
ALGEBRAIC DIFFERENCE ($Y_1 - Y_2$)						SUPERVISOR – SUBORDINATE DYADIC DIFFERENCE BY ACTUAL SIMILARITY INDEX
ALGDED	.721	183	1.024	-2.000	4.000	Difference in Education: (SEDUCATN – EDUCATN)
ALGD TEN	4.822	183	7.627	-15.000	22.000	Difference in Organization Tenure: (STENURE – TENURE)
ALGDPTEN	.630	183	6.273	-17.000	20.000	Difference in Position Tenure: (SPTENURE – PTENURE)
ABSOLUTE DIFFERENCE $|Y_1 - Y_2|$						ABSOLUTE SUPERVISOR – SUBORDINATE DYADIC DIFFERENCE BY ACTUAL SIMILARITY INDEX
ABSDDED	.940	183	.827	.000	4.000	Absolute Difference in Education: $|SEDUCATN - EDUCATN|$
ABSDTEN	7.537	183	4.943	.000	22.000	Absolute Difference in Organization Tenure: $|STENURE - TENURE|$
ABSDPTEN	4.897	183	3.955	.000	20.000	Absolute Difference in Position Tenure: $|SPTENURE - PTENURE|$
DIFFERENCE SCORE	(PERCEPTUAL CONGRUENCE)					DEFINITION OF DIFFERENCE SCORE
	MEAN	N	SD	MIN	MAX	
SQUARED DIFFERENCE $|Y_1 - Y_2|$						SQUARED SUPERVISOR – SUBORDINATE DYADIC DIFFERENCE BY ACTUAL SIMILARITY INDEX
SQDED	1.566	182	2.193	.000	16.000	Squared Difference in Education: $(SEDUCATN - EDUCATN)^2$
SQDTEN	81.101	182	88.965	.000	484.000	Squared Difference in Organizational Tenure: $(STENURE - TENURE)^2$
SQDPTEN	39.661	182	59.228	.000	400.000	Squared Difference in Position Tenure: $(SPTENURE - PTENURE)^2$

depressed by child-care responsibilities, although supervisors slightly underestimate this effect. Importantly, supervisors significantly overestimate their supportiveness of subordinates' child-care related workplace problems relative to subordinates' perceptions ($MSSUPP = 4.241$ compared to $MESUPP = 3.749$). Finally, employees and their superiors generally seemed to agree that the average effect of child-care responsibilities on absenteeism is modest ($MEATTWK = 1.917$ compared to $MSATTWK = 1.953$); interestingly, supervisors slightly overestimated child-care related absenteeism relative to their dyadic partners.

With respect to background variables, supervisors in this sample had significantly more organizational tenure (4.79 years), and moderately more position tenure (.523 years) and education than their subordinates. The dispersion of these measures—the standard deviations—are roughly the same, although supervisory measures are more tightly clustered around their educational mean, i.e. a 4-year college degree.

In addition, all but 3 of the means of difference scores are positive, indicating that supervisors' responses to the survey instrument—both perceptual and actual similarity difference scores—consistently exceed the responses of subordinates. This is to be expected given the larger demographic values typically found for nursing superiors in hospitals and

the inherent difficulty supervisors experience in accurately judging the perceptions of subordinates. Note that demographic/background variables—tenure and education—have no associated summary difference scores as these variables are not composites of individual items. Perceptual variables thus have 6 associated difference score indices while the latter have only 3 simple indices. Lastly, Table 3 presents the 8 gender contrasts developed to compare various dyadic predictor pairs. These contrasts are all dummy coded so that the regression effect of the first dyadic pair is contrasted to that of the second dyadic pair. As Table 3 shows, the maximum number of dyadic pairs reaches only 149 and drops to a low of 40, depending on the respective contrast. These small subsamples result because of the gender homogeneity endemic in the overall data set, i.e. primarily female. This problem will seriously diminish the interpretability and generalizability of results derived, including the gender contrasts as mediated regressors.

C. Correlational Analysis

Table 4 presents the bivariate correlations for important constructs and variables in the analysis. Of the 210 calculated Pearson *rs*, 86 of them, or about 41%, are significant at $p < .10$ or below. Of least interest are the extremely large correlations computed between all the unweighted

Table 3. NUMERICAL DESCRIPTIONS OF SUPERVISOR-SUBORDINATE DYADIC GENDER CONTRASTS

VARIABLE	CONTRAST	N	DYADIC CONTRAST	
			DYADIC CATEGORY 1 (CODED 1)	DYADIC CATEGORY 2 (CODED 0)
CONTSEX	F/F v M/F	139	36 Dyads: Both Supervisor And Subordinate = Female	103 Dyads: Supervisor = Male Subordinate = Female
CONTSEX1	M/F v M/M	107	103 Dyads: Supervisor = Male Subordinate = Female	4 Dyads: Supervisor = Male Subordinate = Male
CONTSEX2	F/F v F/M	42	36 Dyads: Both Supervisor Subordinate = Female	6 Dyads: Supervisor = Female Subordinate = Male
CONTSEX3	F/F v M/M	40	36 Dyads: Both Supervisor Subordinate = Female	4 Dyads: Supervisor = Male Subordinate = Male
CONTSEX4	M/M v All Others	149	4 Dyads: Both Supervisor And Subordinates = Male	145 Dyads: All Remaining Combinations
CONTSEX5	F/F v All Others	149	36 Dyads: Both Supervisor And Subordinate = Female	113 Dyads: All Remaining Combinations
CONTSEX6	M/F v All Others	149	103 Dyads: Supervisor = Male Subordinate = Female	46 Dyads: All Remaining Combinations
CONTSEX7	F/M v All Others	149	6 Dyads: Supervisor = Female Subordinate = Male	143 Dyads: All Remaining Combinations

Table 4. FIRST-ORDER CORRELATIONS FOR SELECTED INTERVAL-LEVEL VARIABLES IN THE STUDY

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1. MSPERF	920																				
2. MPERF	127 ^a	850																			
3. MPERFORM	835 ^d	651 ^d	900																		
4. MSEFFT	277 ^d	016	230 ^e	870																	
5. MEEFFT	129 ^a	174 ^b	189 ^b	198 ^c	790																
6. MEFFECTS	259 ^d	126 ^a	264 ^d	749 ^d	798 ^d	840															
7. MSATTWK	-170 ^c	-166 ^b	-282 ^d	-541 ^d	-124 ^d	-414 ^d	740														
8. MEATTWK	011	-211 ^c	-099	-203 ^c	-358 ^d	-361 ^d	235 ^d	680													
9. MATTNDWK	-156 ^b	-244 ^d	-245 ^d	-475 ^d	-308 ^d	-496 ^d	788 ^d	783 ^d	740												
10. EEOGCMT	-197 ^c	-167 ^b	-243 ^d	031	-071	-033	017	-075	-036	530											
11. MSTEN	-066	-048	-070	053	-055	-021	-140 ^b	-009	-095	039											
12. MTEN	081	096	106	-016	108	056	-135 ^a	-154 ^b	-189 ^b	037	--										
13. MPTEN	054	108	093	005	154 ^b	108	-101	-217 ^c	-205 ^c	032	084	--									
14. MSPTEN	-073	-093	-102	018	-129 ^c	-067	-092	066	-022	-017	018	736 ^d	--								
15. MSSED	059	087	120	085	104	220 ^c	049	-050	-039	-183 ^b	389 ^d	-059	-095	--							
16. MED	171 ^b	-050	102	202 ^c	030	140 ^a	-013	113	064	-048	-318 ^d	-066	-075	173 ^c	--						
17. MSSUPP	299 ^d	045	189 ^b	185 ^d	089	243 ^d	-056	-025	-101	-009	-141 ^a	-261 ^d	-224 ^c	-167 ^b	316 ^d	--					
18. MESUPP	067	083	010	032	215 ^c	155 ^b	-074	044	-015	-195 ^c	-059	-155 ^b	-169 ^b	-017	043	180 ^b	830				
19. SQDTEN	013	108	067	117	125 ^a	157 ^b	-153 ^b	-161 ^b	-202 ^c	-025	-012	-006	-083	004	052	047	-016	680			
20. SQDPTEN	070	-033	038	091	-010	046	-098	-067	-107	056	-181 ^b	231 ^c	287 ^d	-181 ^b	-015	-006	054	-008	--		
21. SQDED	086	133 ^a	143 ^a	049	090	103	024	-020	001	-111	146 ^b	315 ^d	377 ^d	262 ^d	-065	-211 ^c	-089	038	351 ^d	--	
											115	-029	-078	-001	082	036	211 ^c	-008	108	-009	--

ALL VALUES ARE PRECEDED BY A DECIMAL POINT.

VALUES IN DIAGONAL REPRESENT RELIABILITIES WHERE APPROPRIATE.

^a = .1 < *p* < .05; ^b = .05 < *p* < .01; ^c = .01 < *p* < .001; ^d = *p* < .001.

average composite constructs—MPERFORM, MEFFECTS, and MATTNDWK—and their respective components; these *rs* are obviously inflated because the composite construct is correlated with one or the other of its component constructs.

Of greater interest are the interrelations of supervisor and subordinate perceptual constructs. The correlation between supervisor and subordinate views of the effect that child-care responsibilities have on subordinate performance is positive, but only marginally significant ($r = .127$; $.10 < p < .05$). Further, the dyadic correlations for both subordinate attitudes and absenteeism, as affected by child-care responsibilities, are moderate and highly significant, with $p < .01$. Indeed, these *rs* indicate a linear positive, albeit modest, agreement between supervisor and subordinate perceptions on these work-family conflict issues. However, the dyadic correlation between supervisor and subordinate perception of supervisory support for subordinate work-family difficulties is not significant; nor is it positive. This is a critical finding given the centrality of supervisory support in this analysis. It clearly implies that supervisors and their subordinates diverge dramatically in their assessments of the effectiveness of the supervisor as a child-care resource, and should ripple through subsequent results. In addition, the intercorrelations across

perceptual constructs reveal a persistent pattern. Generally, supervisor responses are more highly correlated across supervisor constructs than with subordinate constructs. For example, the supervisor performance construct MSPERF is more highly and significantly correlated with MSEFFT (subordinate attitudes) and MSATTWK (subordinate absenteeism) than with the subordinate analogues (MPERF, MEEFFT and MEATTWK). This pattern demonstrates a logical consistency in subject responses, although some degree of the *common method variance* affliction may contribute to this trend. Finally, the correlations of the absenteeism variables (MSATTWK, MEATTWK, and MSATTNDWK) with other perceptual constructs are negative; this is expected, as the interval scales for the absenteeism constructs move in the reverse direction in wording than the scales of the other perceptual constructs. It is also important to recognize that, for the latter reason, the two-item organizational commitment construct for subordinates tends to be negatively associated with most of the other perceptual constructs. However, it is only significant for several dependent measures—the three performance scales—and subordinates' view of supervisory supportiveness of child-care and work conflicts.

The intercorrelations of the actual similarity (demographic) variables do not seem to follow any strong and consistent confluence, although there are a few noteworthy relationships. Supervisors' and subordinates' education levels are highly positively and significantly correlated ($r = .316$; $p < .001$). This high correlation does not seem unusual where most of the employees are nurses with 4-year academic degrees. That is, 63% of supervisors and 44% of subordinates in dyadic pairs possess 4-year degrees. However, the latter correlation seems difficult to reconcile with the negative correlations between subordinate education and supervisor tenure (MSTEN: $r = -.141$), subordinate tenure (MTEN: $r = -.261$), supervisor position tenure (MPSTEN: $r = -.167$) and subordinate position tenure (MPTEN: $r = -.224$); indeed, a more random pairing by degree level should be expected in such dyads. The interpretation provided here reflects the pairing of more highly trained individuals in more sophisticated positions, such that tenure is essentially held constant. This assertion is derived from a partial correlation analysis—removing the influence of various combinations of both organizational and position tenure up to a fourth order process (with $n \geq 171$, $.288 \leq r \leq .326$, and $p < .001$). In short, a systematic, homogeneous congruence process is probably accounting for the preceding association.

Notably, neither the actual similarity variables nor the difference scores are consistently correlated with the perceptual constructs. This implies that when the former will be tested as predictors of the perceptual constructs, individual relationships may not obtain, therefore calling for joint analyses, i.e. multivariate regression. There is one exception. The squared difference score for tenure (SQDTEN: $[STENURE - TENURE]^2$) is positively and significantly correlated with subordinate attitudes (MEEFT: $r = .125$) and the unweighted mean of subordinate attitudes (MEFFECTS: $r = .157$); it is also negatively and significantly correlated with the supervisory view of subordinate absenteeism (MSATTWK: $r = -.153$), subordinates' view of their own absenteeism (MEATTWK: $r = -.161$), and the unweighted mean of subordinate absenteeism (MSATTNDWK: $r = -.202$). These relationships support the general theme of the study: as actual similarity increases in dyads, outcomes for subordinates will improve. That is, as dyadic tenures converge, subordinates' attitudes toward integrating work-family responsibilities and their difficulties with child-care generated absenteeism will be ameliorated.

C. Conclusion

In summary, the descriptive statistics and the correlations provide moderate evidence that congruence and similarity processes are functioning in the sample. Clearly, supervisor and subordinate perceptions tend to correspond, albeit at modest levels, and with the exception of dyadic views of supervisors' supportiveness for work problems engendered by child-care exigencies. As well, at least one actual similarity variable, i.e. educational levels, exhibits a convergence of supervisor and subordinate academic background that can be reasonably inferred to be nonstochastic. Finally, the squared tenure difference score is positively associated with favorable subordinate outcomes, as postulated in chapter 3. The next section presents a more powerful analysis of these relationships and initiates the exploration of psychosocial interventions in proposing dyadic congruence as both systematic predictor and mediator of individual outcomes.

III. Main Effects Results

A. Perceptual Congruence Difference Scores, Perceptual Congruence Polynomial Sets, and Outcome Variables

This section reports the main effects portion of the mediation model involving the perceptual congruence regressors—both polynomial sets

and difference scores—and their efficacy in predicting the dependent variables. In particular, path a in the mediation model will be reviewed with a focus on comparison of the predictive power of six difference scores and their competing perceptual congruence polynomial sets for each perceptual DV of interest.

Dependent Variables Subordinate Performance, Attitudes, and Absenteeism Regressed on Supervisor Support for Subordinates' Work and Child-Care Conflicts¹

With respect to the three dependent measures of performance, Table 5 demonstrates that none of the supervisor supportiveness difference scores are significant predictors of performance. In fact, the adjusted R^2 index indicates that none of the difference score regressors explains even .1% of the variance in any of the performance measure outcomes; nor does the standard R^2 attain significance for any of these indices. In contrast, the unconstrained polynomial variables for supervisors' supportiveness (X_1 , X_2 , X_1^2 , X_1X_2 , X_2^2) significantly account

¹The organizational commitment construct was reliable only at $\alpha = .56$ and is clearly afflicted with measurement error. When regressed on all polynomials and important difference scores, it failed to be predicted significantly. For these reasons, and to remove the need to consider this variable further, it will be completely dropped from the rest of this chapter and the discussion. Hypotheses assessing the utility of organizational commitment will therefore be ignored henceforth.

Table 5. MAIN EFFECTS: SUBORDINATE PERFORMANCE REGRESSED ON DIFFERENCE SCORES AND POLYNOMIAL EQUATIONS FOR SUPERVISOR SUPPORTIVENESS MEASURES

WORK/FAMILY CONGRUENCE VARIABLE	WORK OUTCOME Z_j	DIFFERENCE SCORE		CONSTRAINED EQUATION (1)				UNCONSTRAINED EQUATION (2)				R ² 's F-TEST ¹ : CONSTRAINED VS UNCONSTRAINED	
		B	R ²	R ² *	N	X ₁	X ₂	X ₁ ²	X ₁ X ₂	X ₂ ²	R ²	R ² *	
Supervisor Support	Subordinate Performance1	(X _{1i} - X _{2i})	.009	.000	.000	183	.488 ^d	.035	-.098	.071	.099 ^e	.073	6.969 ^c (4.273 ^c , 9.724 ^d)
		$\Sigma(X_{1i} - X_{2i})$	.022	.001	.000								6.969 ^c
		$\Sigma(X_{1i} - X_{2i})^2$	-.110	.012	.000								6.969 ^c
		$\Sigma|X_{1i} - X_{2i}|$	-.060	.005	.000								6.969 ^c
		$\Sigma(X_{1i} - X_{2i})^2$	-.025	.004	.000								6.969 ^c
Subordinate Performance2		$\Sigma(X_{1i} - X_{2i})^2$	-.011	.002	.000								6.969 ^c
	Subordinate	(X _{1i} - X _{2i})	-.026	.004	.000	178	.059	.072 ^a	-.040	.028	.052 ^a	.028	No Meaningful Difference
		$\Sigma(X_{1i} - X_{2i})$	-.013	.000	.000								
		$\Sigma(X_{1i} - X_{2i})^2$	.027	.001	.000								
		$\Sigma|X_{1i} - X_{2i}|$	.041	.002	.000								
Subordinate Performance3		$\Sigma(X_{1i} - X_{2i})^2$	.017	.003	.000								
		$\Sigma(X_{1i} - X_{2i})^2$	.016	.004	.000								
	Subordinate	(X _{1i} - X _{2i})	-.008	.000	.000	178	.159 ^a	.050	.113	.056	.055 ^a	.027	2.386 (2.503 ^b , 5.005 ^c)
		$\Sigma(X_{1i} - X_{2i})$	.007	.000	.000								2.386
		$\Sigma(X_{1i} - X_{2i})^2$	-.039	.004	.000								2.386
		$\Sigma|X_{1i} - X_{2i}|$	-.013	.000	.000								2.386
		$\Sigma(X_{1i} - X_{2i})^2$	-.003	.000	.000								2.386
		$\Sigma(X_{1i} - X_{2i})^2$	.001	.000	.000								2.386

X_{1i} = Supervisor's Response; X_{2i} = Subordinate's Response.

^a = .1 < p < .05; ^b = .05 < p < .01; ^c = .01 < p < .001; ^d = p < .001.

Performance1: Supervisors View of Employee's Performance; Performance2: Employee's View; Performance3: Unweighted Mean of Performance1 & 2.

R²: R² Adjusted Formula.

¹F-values in parentheses: standard F-test between non-adjusted R²'s for largest significant difference score R² or 0, whichever is larger; numerator degrees of freedom (df) = 4 for first F-value in parentheses for most conservative estimate and numerator degrees of freedom (df) = 2 for second F-value in parentheses as an adjustment for implied constraints (variables) in difference scores.

for variance explained in two of the three performance outcome variables. First, the polynomial set together accounts for 7.3% of the variance in employees' performance as reported by their respective supervisors at a significance level $p < .01$ (9.9% using the traditional non-adjusted R^2). Secondly, this polynomial regressor set explains 2.7% of the unweighted mean employee performance score, as derived from the average of both employees' and their supervisors' view of employee performance; however, the calculated standard R^2 is only marginally significant, at $.10 < p < .05$. Also recognize that for the averaged subordinate performance measure, 2 of the 3 F-tests show that the polynomials are stronger predictors than difference scores. Finally, supervisor supportiveness polynomial predictors do not significantly predict employees' self-perceived performance.

Overall, the significant differences between the polynomial R^2 s and the difference score R^2 s, as derived from the F-tests, indicate that the constraints implied by the difference scores are misspecified in predicting subordinate performance¹ and performance³. The full polynomial model cannot be rejected as the best estimation of functional form. In essence, the unconstrained polynomial set of supervisor supportiveness variables is superior in predicting performance¹ and suggests a three-dimensional

functional form—a curved surface—with most of the explanatory effect based on the linear supervisors' view of their supportiveness (MSSUPP) construct ($B = .488; p < .001$). Figure 3 presents the 3-D graph of this relationship. Importantly, the surface shows that performance₁ increases at a decreasing rate, as supervisor and subordinate views of supportiveness increase. This surface also reveals a modest declining trend as supervisor and subordinate views jointly decrease. However, a similar effect occurs for incongruent dyads: where supervisors rate themselves high on supportiveness and subordinates rate their supervisors low on supportiveness, supervisor ratings of performance are almost as high as for congruent dyads (compare the north-central corner with the northeast corner).

Interestingly, Figure 4 with dependent measure subordinate performance₃ suggests that as supervisor and subordinate views become more congruent at both higher and lower ratings, averaged performance scores increase. As well, the increase of performance₃ grows at an increasing rate toward all corners of the surface, meaning that perceptual congruence for low and high supportiveness scores for both congruent and incongruent dyads similarly appears to create more favorable subordinate

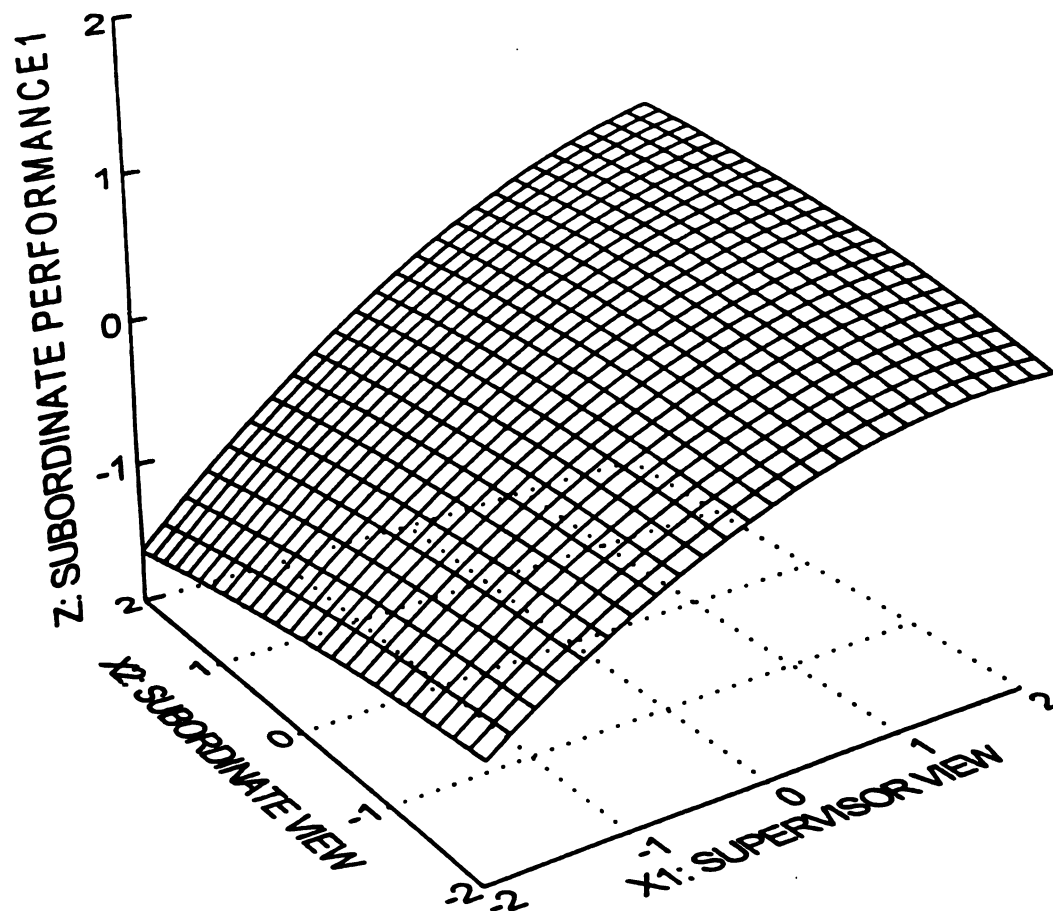


Figure 3. MAIN EFFECTS: SUBORDINATE PERFORMANCE1 REGRESSED ON SUPERVISOR SUPPORTIVENESS POLYNOMIALS

$$Z = .036 + .488X_1 + .035X_2 - .098X_1^2 + .071X_1X_2 - .021X_2^2$$

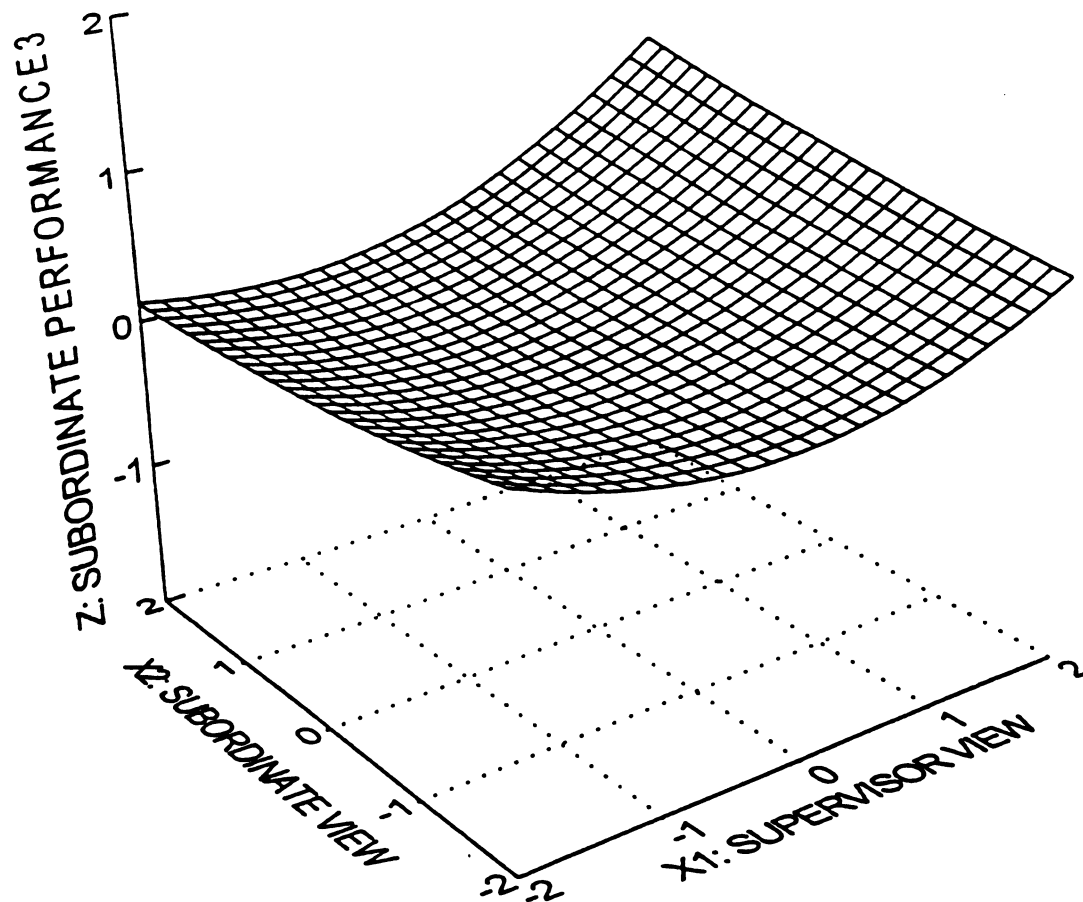


Figure 4. MAIN EFFECTS: SUBORDINATE PERFORMANCE3 REGRESSED ON SUPERVISOR SUPPORTIVENESS POLYNOMIALS

$$Z = .050 + .159X_1 + .050X_2 + .113X_1^2 + .056X_1X_2 + .017X_2^2$$

performance₃ ratings. Given this convoluted relationship, **Hypothesis 1** is only partially supported though one antecedent relationship:

Increasing dyadic congruence regarding perceptions of supervisors' supportiveness for subordinates' work/child-care conflicts improves subordinate performance ratings only at high levels of these perceptions.

Table 6 illuminates the relationship between supervisor and subordinate perceptions of supervisors' supportiveness, and subordinates' attitudes toward managing work-family conflict. In models 1 and 3, none of the difference score indices significantly predict subordinate attitudes, while the supervisor support polynomials significantly explain 6.8% and 6.9% of the variance in subordinate attitudes₁ and attitudes₃, respectively. It can be concluded that the quadratic regression equations most efficiently delineate these functional relationships. Model 2 shows that the algebraic and the sum of algebraic difference scores are just as effective predictors of attitudes₂ as the polynomial set, as measured by the first two F-tests. However, where the third F-test is adjusted for implied constraints, the numerator degrees of freedom decreases in the formula and the difference in R^2 s becomes significant. It therefore seems reasonable to assert that the unconstrained polynomial set describes the

Table 6. MAIN EFFECTS: SUBORDINATE ATTITUDES REGRESSED ON DIFFERENCE SCORES AND POLYNOMIAL EQUATIONS FOR SUPERVISOR SUPPORTIVENESS MEASURES

WORK/FAMILY WORK CONGRUENCE OUTCOME VARIABLE Z_j		DIFFERENCE SCORE	CONSTRAINED EQUATION (1)				UNCONSTRAINED EQUATION (2)							R ² 's F-TEST ¹ : CONSTRAINED VS UNCONSTRAINED
			B	R ²	R ² *	N	X ₁	X ₂	X ₁ ²	X ₁ X ₂	X ₂ ²	R ²	R ² *	
Supervisor Support	Subordinate Attitudes1	(X _{1i} - X _{2i})	.062	.007	.000	183	.572 ^d	.008	-.104	.059	-.030	.094 ^c	.068	6.457 ^c (4.591 ^c , 9.182 ^d)
		$\Sigma(X_{1i} - X_{2i})$	.062	.008	.000									6.457 ^c
		$|X_{1i} - X_{2i}|$	-.133	.012	.000									6.457 ^c
		$\Sigma|X_{1i} - X_{2i}|$	-.078	.006	.000									6.457 ^c
		$(X_{1i} - X_{2i})^2$	-.024	.002	.000									6.457 ^c
		$\Sigma(X_{1i} - X_{2i})^2$	-.008	.001	.000								6.457 ^c	
Subordinate Attitudes2	Subordinate Attitudes2	(X _{1i} - X _{2i})	-.122 ^b	.027 ^b	.011	181	.102	.174 ^c	.263	.072	.016	.062 ^b	.035	2.176 (1.632, 3.265 ^d)
		$\Sigma(X_{1i} - X_{2i})$	-.143 ^a	.020 ^a	.004									2.811
		$|X_{1i} - X_{2i}|$	-.101	.007	.000									3.174 ^b
		$\Sigma|X_{1i} - X_{2i}|$	-.181 ^a	.016 ^a	.000									3.174 ^b
		$(X_{1i} - X_{2i})^2$	-.036	.005	.000									3.174 ^b
		$\Sigma(X_{1i} - X_{2i})^2$	-.059 ^a	.017 ^a	.000								3.174 ^b	
Subordinate Attitudes3	Subordinate Attitudes3	(X _{1i} - X _{2i})	-.030	.003	.000	181	.276 ^b	.082 ^a	.241	.078	-.005	.095 ^c	.069	6.485 ^c (3.819 ^b , 9.185 ^d)
		$\Sigma(X_{1i} - X_{2i})$	-.023	.001	.000									6.485 ^c
		$|X_{1i} - X_{2i}|$	-.105	.014	.000									6.485 ^c
		$\Sigma|X_{1i} - X_{2i}|$	-.134 ^a	.016 ^a	.000									6.485 ^c
		$(X_{1i} - X_{2i})^2$	-.027	.005	.000									6.485 ^c
		$\Sigma(X_{1i} - X_{2i})^2$	-.032	.010	.000								6.485 ^c	

X₁ = Supervisor's Response; X₂ = Subordinate's Response.

^a = .1 < p < .05; ^b = .05 < p < .01; ^c = .01 < p < .001; ^d = p < .001.

Performance1: Supervisors' View of Employee's Performance; Performance2: Employee's View; Performance3: Unweighted Mean of Performance1 & 2.

R²: R² Adjusted Formula.

¹F-values in parentheses: standard F-test between non-adjusted R²'s for largest significant difference score R² or 0, whichever is larger; numerator degrees of freedom (df) = 4 for first F-value in parentheses for most conservative estimate and numerator degrees of freedom (df) = 2 for second F-value in parentheses as an adjustment for implied constraints (variables) in difference scores.

functional relationship more appropriately than the difference scores and effectively explains 3.5% of the variance in attitudes².

With respect to subordinate attitudes¹, predictive power is captured primarily through the supervisors' perceptions of their supportiveness in a concave relationship ($B = .572; p < .001$). That is, as supervisors' and subordinates' views of supportiveness increase concurrently, subordinate attitudes¹—as assessed by supervisors—increases at a modestly decreasing rate (Figure 5). This relation with perceptions of attitudes¹ holds for incongruent dyads as well. In other words, irrespective of the level of subordinates' perceptions, as supervisors' views of their own supportiveness increases, so do their ratings of subordinates' attitudes. Conversely, congruence at lower supportiveness scores does not generate the favorable attitudinal rating by supervisors, as does dyadic congruence at higher supportiveness scores.

Alternatively, the convex shapes in Figures 6 and 7 indicate that dyadic agreement on supervisor supportiveness at the highest levels generates the most favorable subordinate attitudes toward managing work and child-care. However, perceptual incongruence is also associated with above average subordinate attitudes (see the south, west and east corners). The convex effect of this relationship is generated by an approximate line

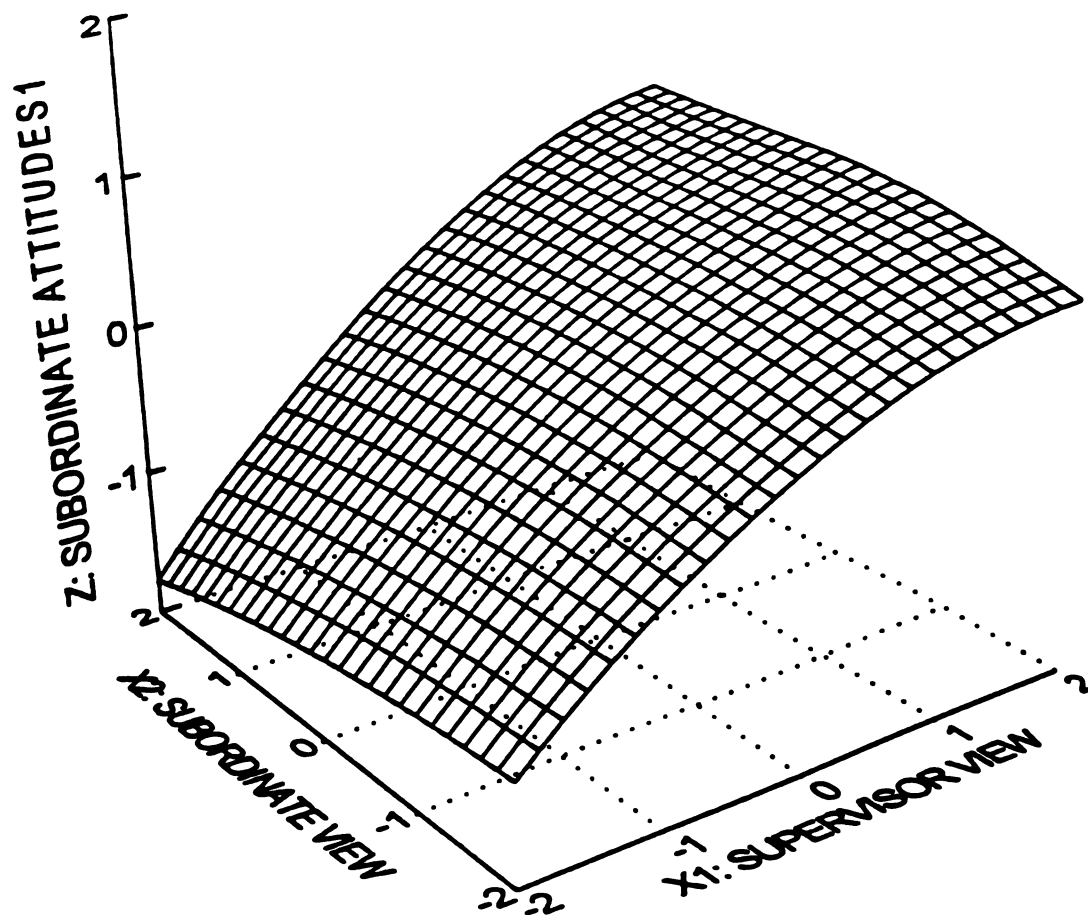


Figure 5. MAIN EFFECTS: SUBORDINATE ATTITUDES1 REGRESSED ON SUPERVISOR SUPPORTIVENESS POLYNOMIALS

$$Z = .135 + .572X_1 + .008X_2 - .104X_1^2 + .059X_1X_2 - .030X_2^2$$

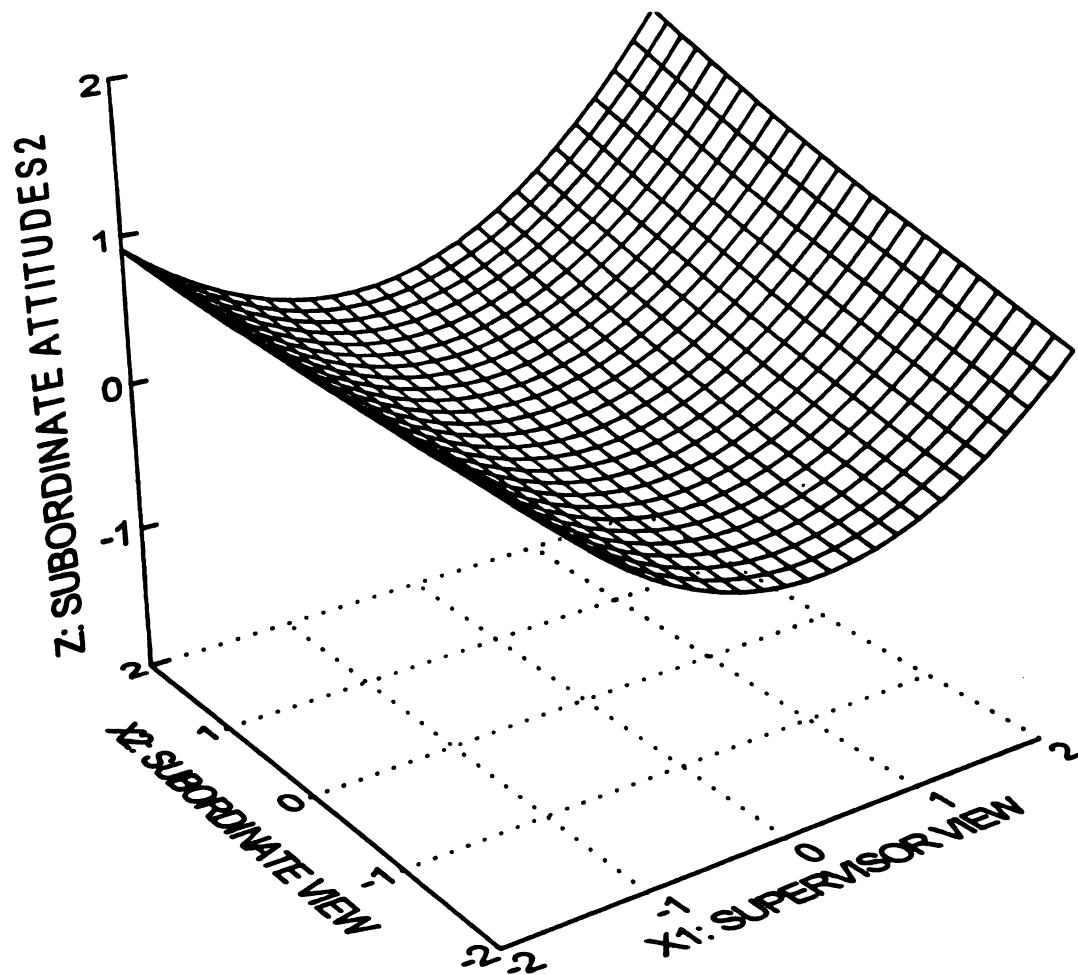


Figure 6. MAIN EFFECTS: SUBORDINATE ATTITUDES2 REGRESSED ON SUPERVISOR SUPPORTIVENESS POLYNOMIALS

$$Z = -.059 + .102X_1 + .174X_2 + .263X_1^2 + .072X_1X_2 + .016X_2^2$$

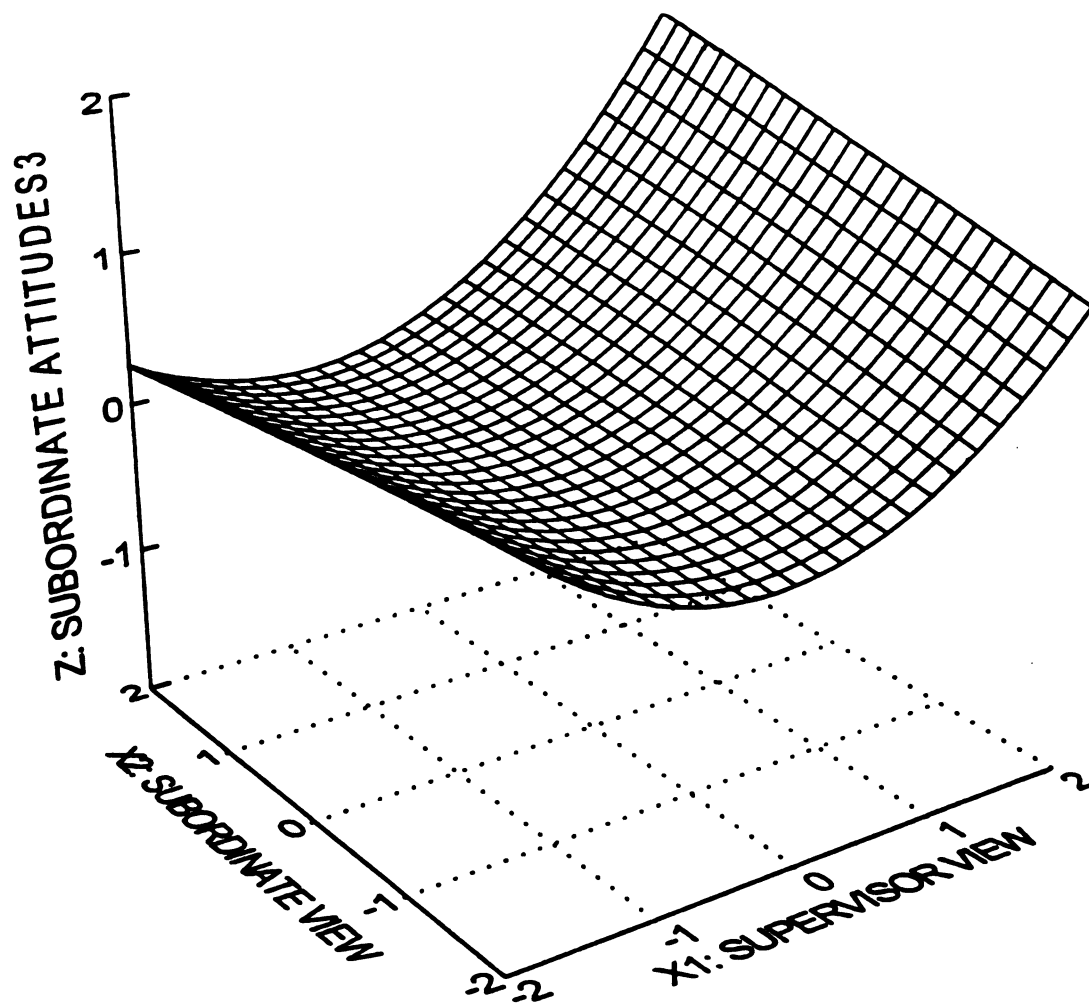


Figure 7. MAIN EFFECTS: SUBORDINATE ATTITUDES3 REGRESSED ON SUPERVISOR SUPPORTIVENESS POLYNOMIALS

$$Z = .018 + .276X_1 + .082X_2 + .241X_1^2 + .078X_1X_2 - .005X_2^2$$

of minimization, along the mean-centered line (0 line) of the supervisors' views axis. It indicates that departure from the line of mean centering in either a positive or negative direction predicts higher attitudinal ratings in a very symmetrical pattern. In sum, it cannot be asserted that the response surfaces in Figures 6 and 7—and their associated equations—completely confirm hypothesis 2, as both congruence and incongruence produce higher ratings of subordinate attitudes. Overall, interpretations of all three models are less than affirming; dyadic congruence across views of supervisor supportiveness at higher levels of agreement appears to produce the most favorable evaluations of subordinates' attitudes toward work and child-care integration, although 2 of the 3 graphs show that incongruent dyads also produce above average attitudinal ratings. Moreover, congruence at lower levels of perceptual agreement does not consistently predict significantly improved subordinate attitudes across all 3 models. Thus, for **Hypothesis 2:**

Increasing dyadic congruence regarding perceptions of supervisor supportiveness for subordinates' work/child-care conflicts leads to improved subordinate attitudes toward managing work and child-care difficulties only at higher levels of dyadic agreement.

Lastly, the polynomial set for supervisor supportiveness did not significantly predict either subordinate absenteeism caused by

work/family conflict, nor subordinate organizational commitment. Difference score indices were equally ineffective as regression predictors. Moreover, no perceptual congruence or actual similarity polynomial regression was predictive of *subordinates' organizational commitment* so that this dependent measure is not considered in the remainder of the analysis. Hence, responding to Hypothesis 3:

Increasing dyadic congruence regarding perceptions of supervisor supportiveness for subordinates' work/child-care conflicts does not generate improved subordinate attendance.

Dependent Variables Subordinate Performance and Absenteeism Regressed on Subordinates' Attitudes toward Managing Work and Child-Care Conflicts

Table 7 presents the regression results for employee attitudes as difference score and polynomial predictors of the three indices of performance. Clearly, the *prima facie* conclusion to be drawn from the Table 7 is that these constrained difference scores are virtually useless predictors of all subordinate performance constructs. Conversely, the polynomials are an effective regressor set for explaining the variance in subordinate performance₁ and subordinate performance₃ variables. The polynomials explain 9.7% of the variance in performance₁—significant at performance₃, again with ($p < .001$). The functional form representations

Table 7. MAIN EFFECTS: SUBORDINATE PERFORMANCE REGRESSED ON DIFFERENCE SCORES AND POLYNOMIAL EQUATIONS FOR SUBORDINATE ATTITUDES

WORK/FAMILY WORK CONGRUENCE OUTCOME VARIABLE Z_j	DIFFERENCE SCORE	CONSTRAINED EQUATION (1)				UNCONSTRAINED EQUATION (2)							R ² s F-TEST ¹ : CONSTRAINED VS UNCONSTRAINED
		B	R ²	R ^{2*}	N	X ₁	X ₂	X ₁ ²	X ₁ X ₂	X ₂ ²	R ²	R ^{2*}	
Employee Attitudes: Managing Work/Family Conflict	Subordinate Performance1	.072	.011	.000	184	.247 ^d	.163 ^b	.049	-.048	.166 ^c	.122 ^d	.097	9.560 ^d (5.423 ^c , 8.082 ^d)
	$\Sigma(X_{1i} - X_{2i})$	.087 ^a	.015 ^a	.000									9.560 ^d
	$|X_1 - X_2|$	.020	.000	.000									9.560 ^d
	$\Sigma|X_{1i} - X_{2i}|$	-.083	.005	.000									9.560 ^d
	$(X_1 - X_2)^2$	.034	.005	.000									9.560 ^d
	$\Sigma(X_{1i} - X_{2i})^2$	.003	.000	.000									9.560 ^d
	Subordinate Performance2	-.065 ^a	.017 ^a	.000	178	-.004	.111 ^b	.016	-.025	.007	.032	.004	No Meaningful Difference
	$\Sigma(X_{1i} - X_{2i})$	-.084	.015	.000									
	$|X_1 - X_2|$	-.049	.004	.000									
	$\Sigma|X_{1i} - X_{2i}|$	.039	.001	.000									
	$(X_1 - X_2)^2$	-.010	.001	.000									
	$\Sigma(X_{1i} - X_{2i})^2$	.033	.007	.000									
	Subordinate Performance3	.007	.000	.000	178	.152 ^c	.132 ^c	.075b	-.055	.086 ^b	.118 ^b	.092	8.714 ^d (5.753 ^c , 11.51 ^d)
	$\Sigma(X_{1i} - X_{2i})$	.020	.001	.000									8.714 ^d
	$|X_1 - X_2|$	-.009	.000	.000									8.714 ^d
	$\Sigma|X_{1i} - X_{2i}|$	-.027	.001	.000									8.714 ^d
	$(X_1 - X_2)^2$	.014	.002	.000									8.714 ^d
	$\Sigma(X_{1i} - X_{2i})^2$	.021	.004	.000									8.714 ^d

X₁ = Supervisor's Response; X₂ = Subordinate's Response.
^a = .1 < p < .05; ^b = .05 < p < .01; ^c = .01 < p < .001; ^d = p < .001.

Performance1: Supervisors View of Employee's Performance; Performance2: Employee's View; Performance3: Unweighted Mean of Performance1 & 2.

R²: R² Adjusted Formula.

F-values in parentheses: standard F-test between non-adjusted R²s for largest significant difference score R² or 0, whichever is larger; numerator degrees of freedom (df) = 4 for first F-value in parentheses for most conservative estimate and numerator degrees of freedom (df) = 2 for second F-value in parentheses as an adjustment for implied constraints (variables) in difference scores..

for these two regression models are especially noteworthy: given that 3 and 4 regression coefficients are positive and significant, respectively, it appears that a convex, three-dimensional form underlies the relationship between dyadic perceptions of subordinate attitudes, and subordinate performance₁ and performance₃. Figures 8 and 9 display moderate convexity, and show that as dyadic views of subordinate attitudes increase jointly, i.e. toward the northern corner of the graph, subordinate performance ratings increase at increasing rates and attain the highest performance ratings. However, congruence in the opposite direction appears to lead to a minimum point of performance₁ at, approximately, $X_1 = -1$ and $X_2 = -1$, and perhaps a minimum for performance₃ at $X_1 = 0$ and $X_2 = 0$. Effectively, this suggests that as supervisor and subordinate perceptions of the subordinate's attitude toward integrating work and child-care responsibilities converge at high levels, subordinate performance scores increase across both supervisory (MSPERF) and averaged ratings (MPERFORM); congruence in the opposite direction leads to decrease performance ratings. Importantly, hypothesis 5 is not clearly supported because along the line of perfect congruence, $X_1 = X_2$, performance tends to diminish as both supervisor and subordinate ratings of attitudes diminish. In addition, the peaks in the western and eastern

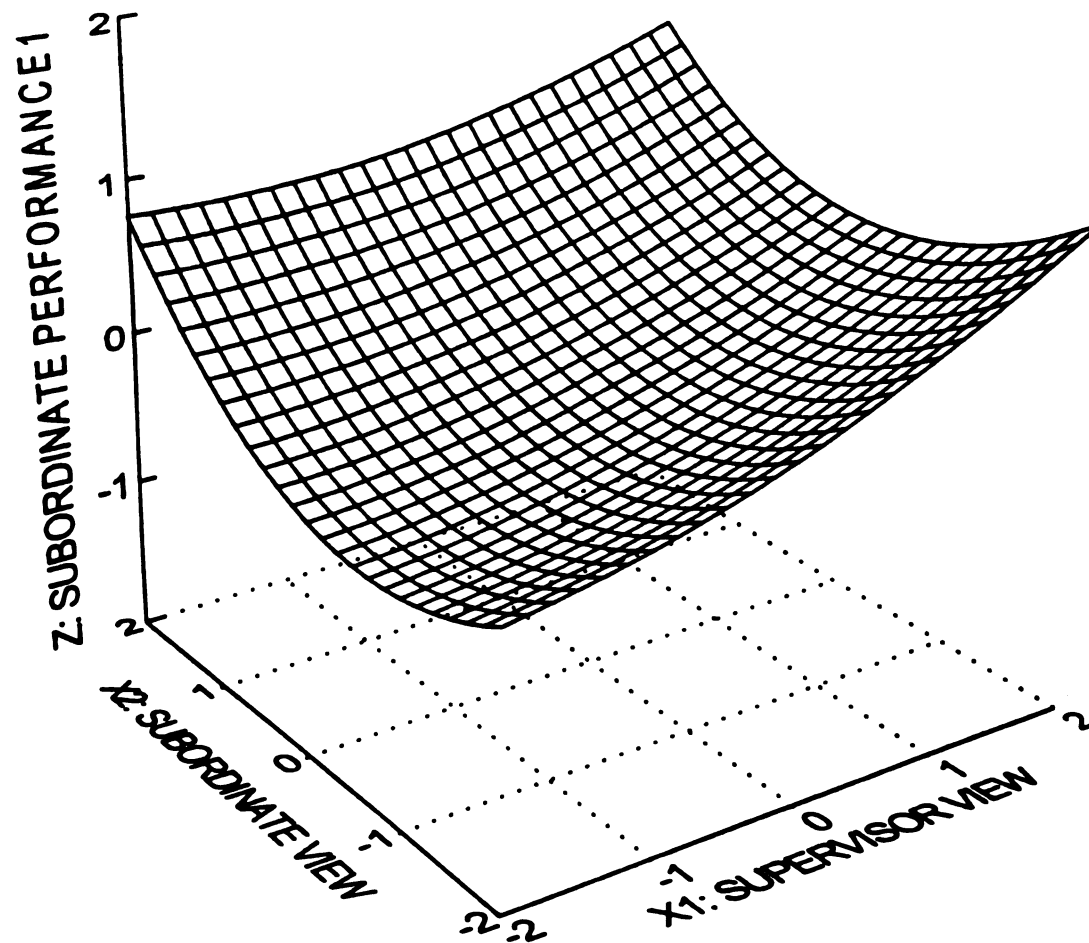


Figure 8. MAIN EFFECTS: SUBORDINATE PERFORMANCE1 REGRESSED ON SUBORDINATE ATTITUDES POLYNOMIALS

$$Z = -.123 + .247X_1 + .163X_2 + .049X_1^2 - .048X_1X_2 + .166X_2^2$$

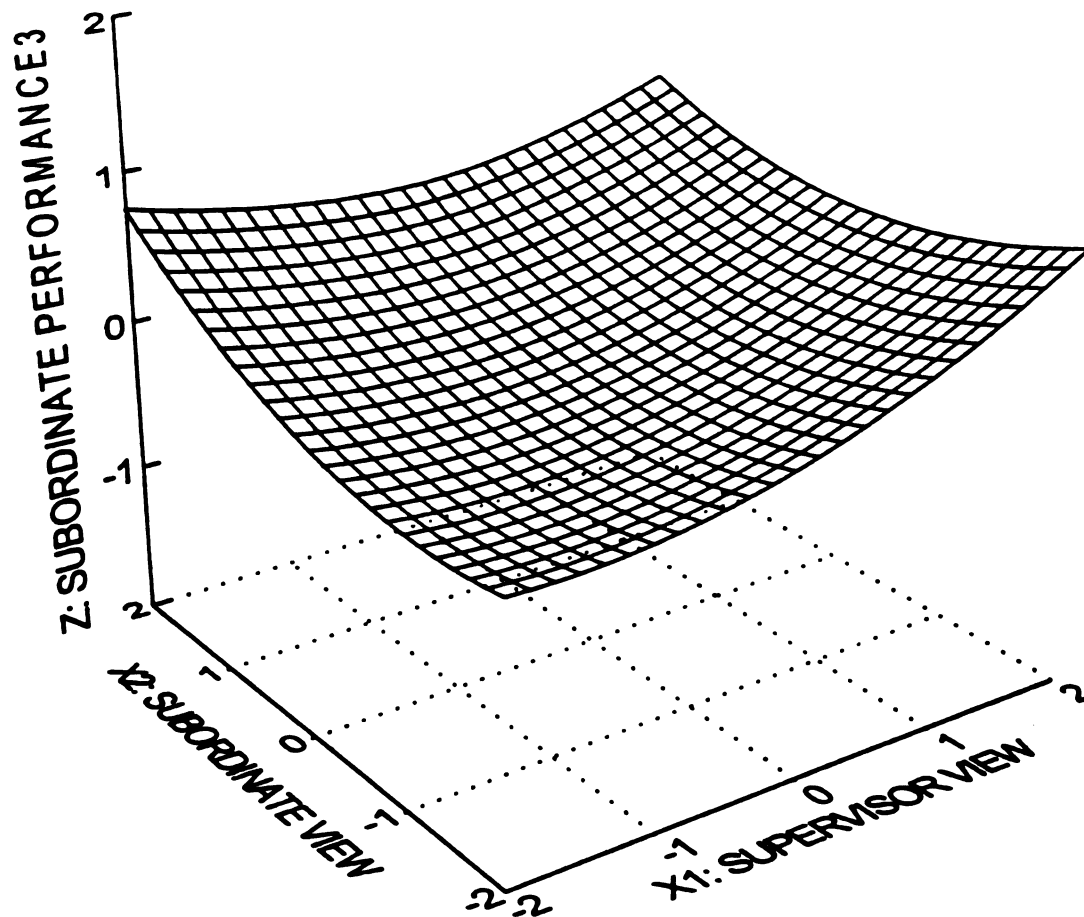


Figure 9. MAIN EFFECTS: SUBORDINATE PERFORMANCE3 REGRESSED ON SUBORDINATE ATTITUDES POLYNOMIALS

$$Z = -.066 + .152X_1 + .132X_2 + .075X_1^2 - .055X_1X_2 + .086X_2^2$$

corners of the surfaces reveal that dyadic perceptual incongruence is also associated with above average performance scores. The result for **Hypothesis 5**, then, is stated:

Greater manager's perceptual congruence regarding perceptions of the subordinate's attitudes toward managing work and child-care difficulties (MPC) produces higher subordinate performance ratings only at jointly high attitudinal ratings.

Table 8 reports the regression results for the dependent absenteeism measures regressed on the attitudinal polynomial set. The constraints of the difference scores were so strongly rejected that it was deemed necessary to report only the R^2 adjusted F-test. The unconstrained polynomials significantly explain high amounts of variance in subordinate absenteeism^{1, 2 and 3}, respectively 29.4%, 13.1% and 25.8% ($p < .001$). Despite these strong relationships, the visual patterns of the functional forms are somewhat cryptic and inconsistent. Figure 10 indicates that as supervisor and subordinate views of subordinates' attitudes improve jointly, subordinate absenteeism problems as reported by supervisors diminish. Interestingly, perceptual incongruence in one direction—where supervisors rate subordinates' attitudes low and subordinates rate them high, i.e. the northwest corner—results in exacerbated absenteeism while incongruence in the opposite direction approximates average absenteeism

Table 8. MAIN EFFECTS: SUBORDINATE ABSENTEEISM REGRESSED ON DIFFERENCE SCORES AND POLYNOMIAL EQUATIONS FOR SUBORDINATE ATTITUDES

WORK/FAMILY WORK CONGRUENCE OUTCOME VARIABLE Z_j		DIFFERENCE SCORE	CONSTRAINED EQUATION (1)				UNCONSTRAINED EQUATION (2)						R ² *s F-TEST: CONSTRAINED VS UNCONSTRAINED	
			B	R ²	R ² *	N	X ₁	X ₂	X ₁ ²	X ₁ X ₂	X ₂ ²	R ²			R^{2}*
Employee Attitudes: Managing Work/Family Conflict	Subordinate	(X ₁ - X ₂)	-.258 ^d	.090 ^d	.075	184	-.517 ^d	-.065	.136 ^b	-.071	-.072	.313 ^d	.294	27.608 ^d
	Absenteeism1	$\Sigma(X_{1i} - X_{2i})$	-.265 ^d	.086 ^d	.073									27.860 ^d
		|X ₁ - X ₂|	.169	.013	.000									37.062 ^d
		$\Sigma|X_{1i} - X_{2i}|$	.421 ^d	.078 ^a	.065									28.868 ^d
		(X ₁ - X ₂) ²	.062	.010	.000									37.062 ^d
		$\Sigma(X_{1i} - X_{2i})^2$	.142 ^d	.079 ^d	.066									28.742 ^d
Subordinate Absenteeism2		(X ₁ - X ₂)	.127 ^b	.022 ^b	.000	182	.130	-.351 ^d	-.008	.128	-.013	.155 ^d	.131	12.658 ^d
		$\Sigma(X_{1i} - X_{2i})$	.116	.010	.000									12.861 ^d
		|X ₁ - X ₂|	.116	.008	.000									13.266 ^d
		$\Sigma|X_{1i} - X_{2i}|$	.156	.006	.000									13.266 ^d
		(X ₁ - X ₂) ²	.051	.008	.000									13.266 ^d
		$\Sigma(X_{1i} - X_{2i})^2$	.035	.005	.000									13.266 ^d
Subordinate Absenteeism3		(X ₁ - X ₂)	-.067	.010	.000	182	-.352 ^d	-.205 ^c	-.018	.066	-.038	.278 ^d	.258	30.598 ^d
		$\Sigma(X_{1i} - X_{2i})$	-.116 ^a	.016 ^a	.000									30.598 ^d
		|X ₁ - X ₂|	.139 ^a	.017 ^a	.001									30.480 ^d
		$\Sigma|X_{1i} - X_{2i}|$	.356 ^c	.053 ^c	.037									26.210 ^d
		(X ₁ - X ₂) ²	.055	.015	.000									30.598 ^d
		$\Sigma(X_{1i} - X_{2i})^2$	.089 ^c	.051 ^c	.035									26.477 ^d

X₁ = Supervisor's Response; X₂ = Subordinate's Response.

^a = .1 < p < .05; ^b = .05 < p < .01; ^c = .01 < p < .001; ^d = p < .001.

Absenteeism1: Supervisor View of Subordinate's Absenteeism; Absenteeism2: Subordinate Self-View; Absenteeism3: Unweighted Mean of Performance1 & 2.
R²*: R² Adjusted Formula.

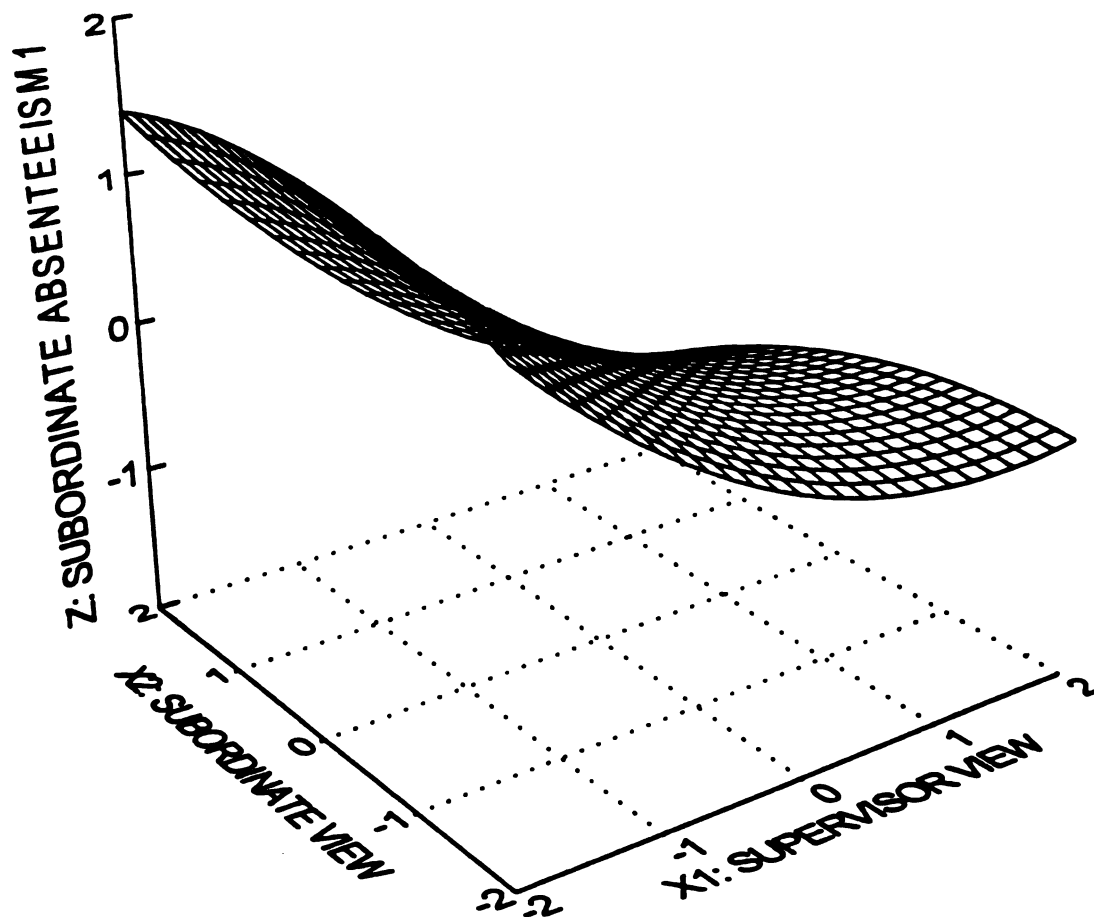


Figure 10. MAIN EFFECTS: SUBORDINATE ABSENTEEISM1 REGRESSED ON SUBORDINATE ATTITUDES POLYNOMIALS

$$Z = -.032 - .517X_1 - .065X_2 + .136X_1^2 - .071X_1X_2 - .072X_2^2$$

difficulties. In contrast, Figure 11 reveals that the highest level of absence problems, as asserted by subordinates, occurs where: 1) dyadic members are congruent at above mean views of subordinate attitudes and 2) dyadic members' views are incongruent at high supervisor and low subordinate ratings of subordinates' attitudes (respectively, the northern and northeast corners). Figure 12 merely balances these obverse trends and portrays an essentially static relationship across changes in perceptions. Given the converse relations found in models 1 and 2 in Table 8, **Hypothesis 6** cannot be fully validated:

Greater manager's perceptual congruence (MPC) regarding subordinates' attitudes toward managing work and child-care conflict produces improvement in subordinates' attendance only at jointly high perceptions of subordinates' attitudes where the latter is measured by supervisors.

Dependent Variable Subordinate Performance Regressed on Views of Subordinates' Child-Care Related Absenteeism

Table 9 presents the statistical results for the subordinate performance variables predicted by the subordinate absenteeism polynomial set. While the latter explain 4.8%, 3.3%, and 5.8% of the variance in the three performance variables, the difference scores seem to be equally effective regressors for the first two models. Clearly, the constraints of the algebraic difference scores can not be rejected in model

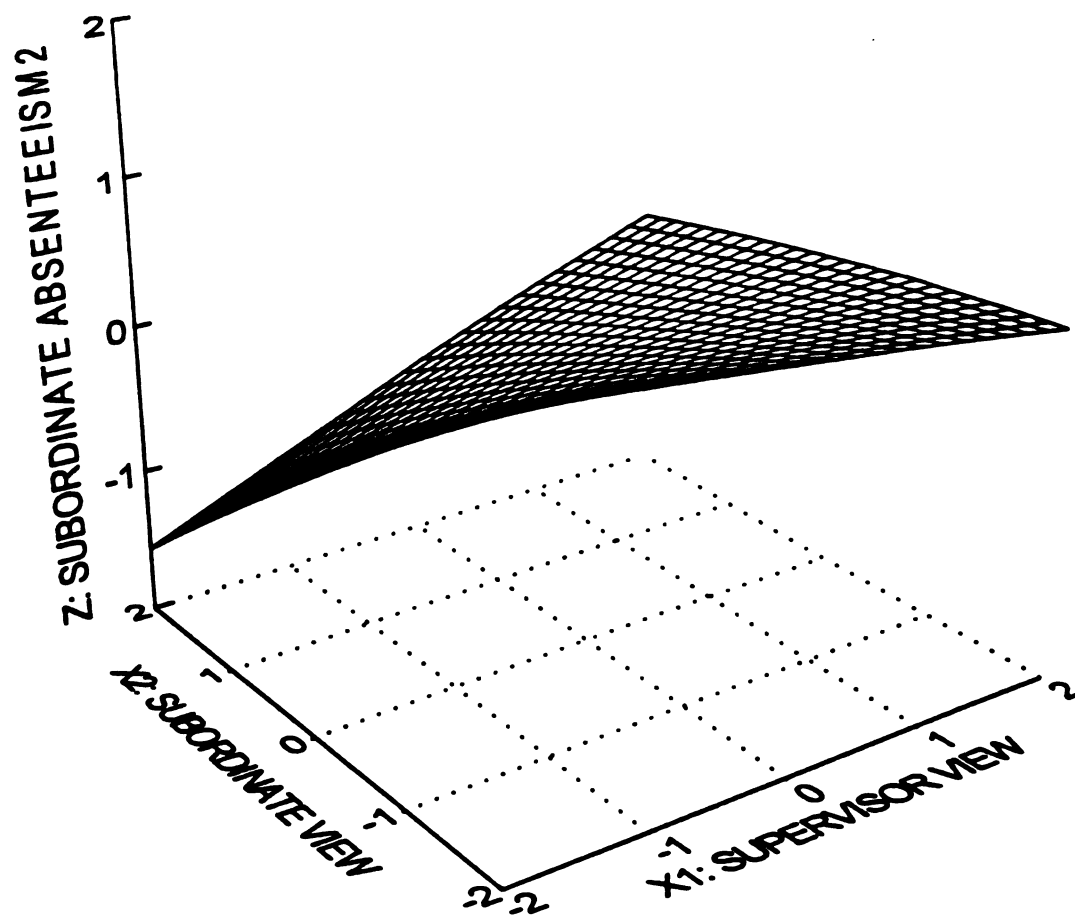


Figure 11. MAIN EFFECTS: SUBORDINATE ABSENTEEISM2 REGRESSED ON SUBORDINATE ATTITUDES POLYNOMIALS

$$Z = -.001 + .130X_1 - .351X_2 - .008X_1^2 + .128X_1X_2 - .013X_2^2$$

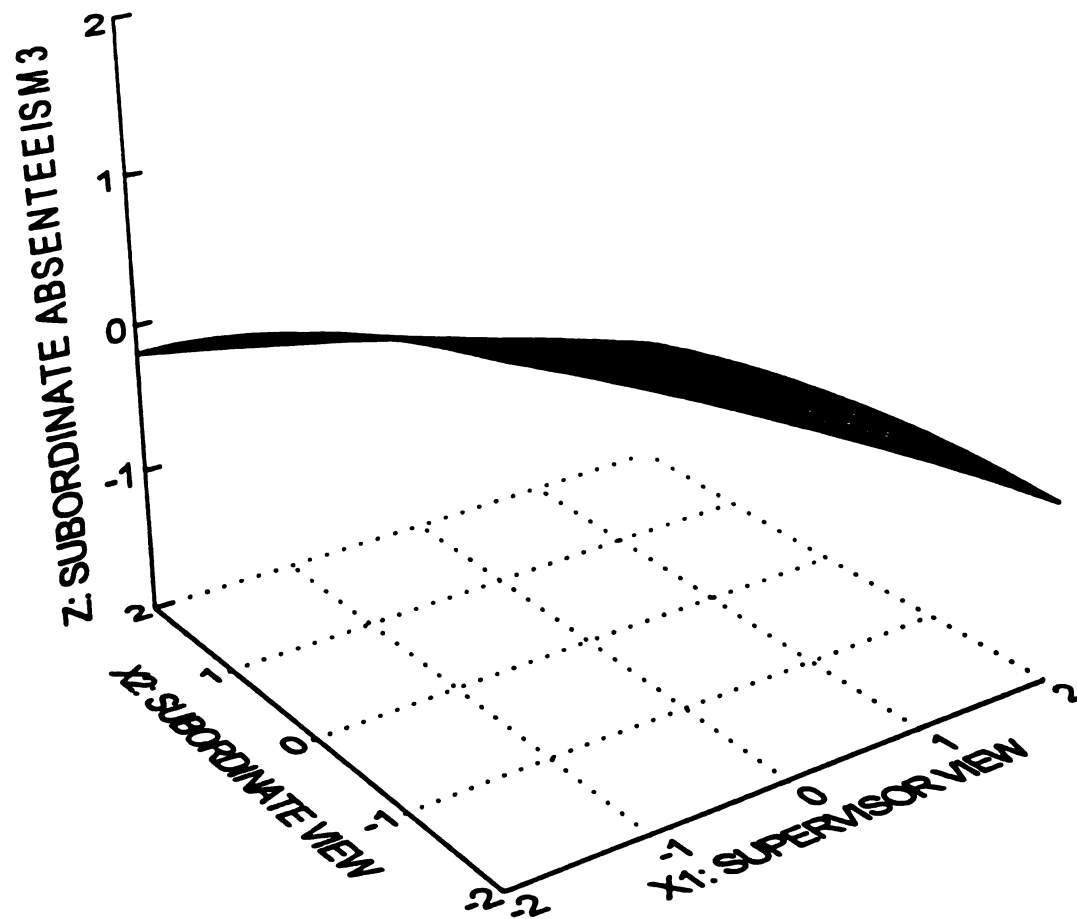


Figure 12. MAIN EFFECTS: SUBORDINATE ABSENTEEISM3 REGRESSED ON SUBORDINATE ATTITUDES POLYNOMIALS

$$Z = .0002 - .352X_1 - .205X_2 - .018X_1^2 + .066X_1X_2 - .038X_2^2$$

Table 9. MAIN EFFECTS: SUBORDINATE PERFORMANCE REGRESSED ON DIFFERENCE SCORES AND POLYNOMIAL EQUATIONS FOR SUBORDINATE ABSENTEEISM

WORK/FAMILY WORK CONGRUENCE OUTCOME VARIABLE Z_j	DIFFERENCE SCORE	CONSTRAINED EQUATION (1)				UNCONSTRAINED EQUATION (2)							R ² 's F-TEST ¹ : CONSTRAINED VS UNCONSTRAINED	
		B	R ²	R ² *	N	X ₁	X ₂	X ₁ ²	X ₁ X ₂	X ₂ ²	R ²	R ² *		
Employee Perceptions of Absenteeism Generated by Work/Family Conflict	Subordinate Performance1	(X ₁ - X ₂) Σ(X _{1i} - X _{2i}) |X ₁ - X ₂| Σ|X _{1i} - X _{2i}| (X ₁ - X ₂) ² Σ(X _{1i} - X _{2i}) ²	-.140 ^c -.152 ^c -.058 -.074 -.019 -.015	.046 ^c .052 ^c .003 .005 .002 .002	.025 .036 .000 .000 .000 .000	184	-.191 ^c	.063	-.035	-.022	.003	.074 ^b	.048	2.150 (1.057, 2.114) 1.122 4.487 ^b 4.487 ^b 4.487 ^b 4.487 ^b
Subordinate Performance2	(X ₁ - X ₂) Σ(X _{1i} - X _{2i}) |X ₁ - X ₂| Σ|X _{1i} - X _{2i}| (X ₁ - X ₂) ² Σ(X _{1i} - X _{2i}) ²	.013 .003 -.062 -.155 ^b -.024 -.047 ^b	.001 .000 .007 .025 ^b .007 .023 ^b	.000 .000 .000 .009 .000 .007	179	-.071	-.092 ^a	.008	-.004	-.016	.060 ^a	.033	2.952 ^a (1.610, 3.221 ^b) 2.952 ^a 2.952 ^a 2.147 2.952 ^a 2.326	
Subordinate Performance3	(X ₁ - X ₂) Σ(X _{1i} - X _{2i}) |X ₁ - X ₂| Σ|X _{1i} - X _{2i}| (X ₁ - X ₂) ² Σ(X _{1i} - X _{2i}) ²	-.064 ^b .100 ^b -.053 -.118 ^a -.020 -.032	.023 ^b .030 ^b .001 .018 ^a .006 .013	.006 .014 .000 .001 .000 .000	179	-.124 ^c	-.007	-.005	-.019	-.008	.084 ^c	.058	4.775 ^c (2.550 ^b , 5.099 ^c) 4.040 ^b 5.234 ^c 5.228 ^c 5.326 ^c 5.236 ^b	

X₁ = Supervisor's Response; X₂ = Subordinate's Response.

^a = .1 < p < .05; ^b = .05 < p < .01; ^c = .01 < p < .001; ^d = p < .001.

Performance1: Supervisors View of Employee's Performance; Performance2: Employee's View; Performance3: Unweighted Mean of Performance1 & 2.

R²*: R² Adjusted Formula.

¹F-values in parentheses: standard F-test between non-adjusted R²'s for largest significant difference score R² or 0, whichever is larger; numerator degrees of freedom (df) = 4 for first F-value in parentheses for most conservative estimate and numerator degrees of freedom (df) = 2 for second F-value in parentheses as an adjustment for implied constraints (variables) in difference scores..

1, as none of the F-tests indicate a significant difference. Similarly, the sum of absolute item differences and the sum of squared item differences appear to be robust regressors. However, since the standard R^2 indices are significantly different when the F-test is adjusted for constraints (additional variables), this model will continue to be evaluated in the analysis.

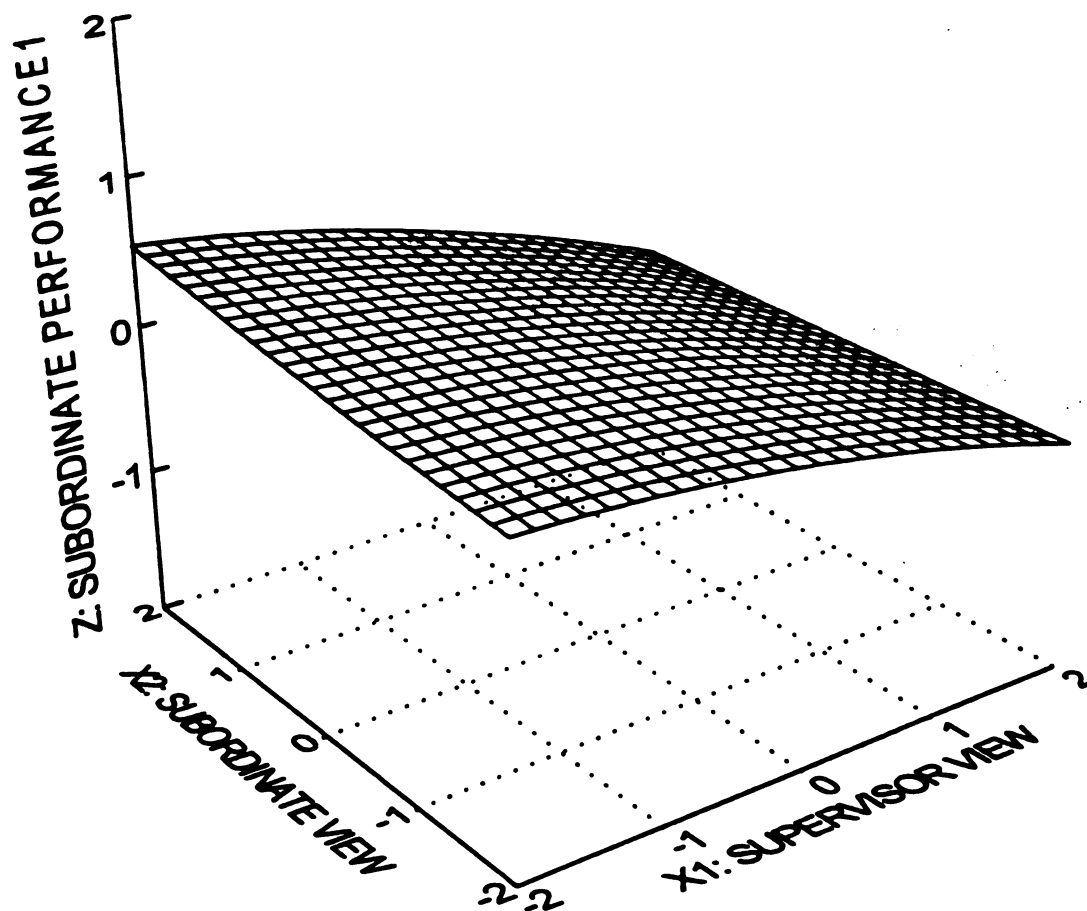
Figures 13-15 display a static relationship between perceptions of absenteeism and 3 different measures of subordinate performance. That is, these graphs indicate that as supervisor and subordinate views of subordinate absenteeism move toward congruence or incongruence, ratings of performance remain virtually unchanged, holding at about the mean-centered X_1, X_2 plane at $Z \approx 0$. This peculiar result invalidates

Hypothesis 8:

Stronger manager's perceptual congruence (MPC) involving the child-care generated absenteeism of subordinates does not produce improved performance ratings of subordinates.

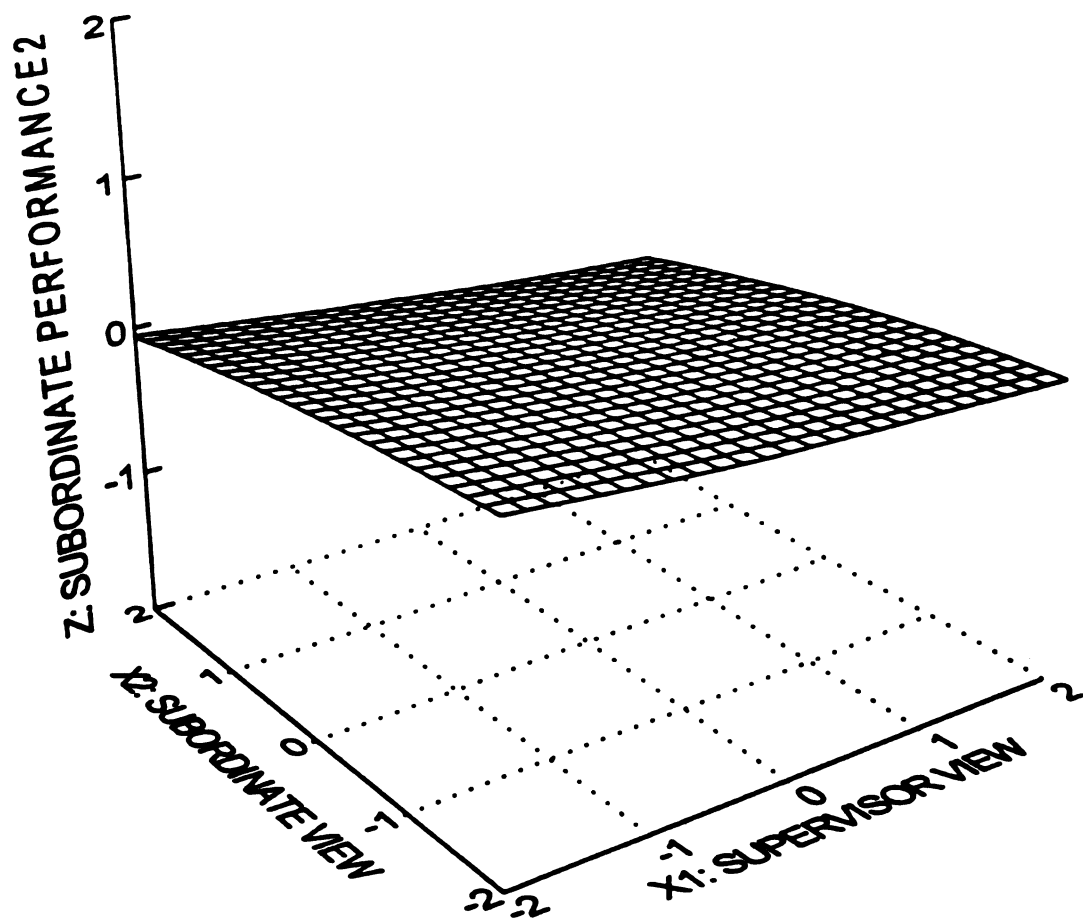
B. Actual Similarity Difference Scores, Actual Similarity Polynomial Sets, and Outcome Variables

This section reports the main effects portion of the mediation model involving the actual similarity regressors—both polynomial sets and difference scores—and their efficacy in predicting the given dependent



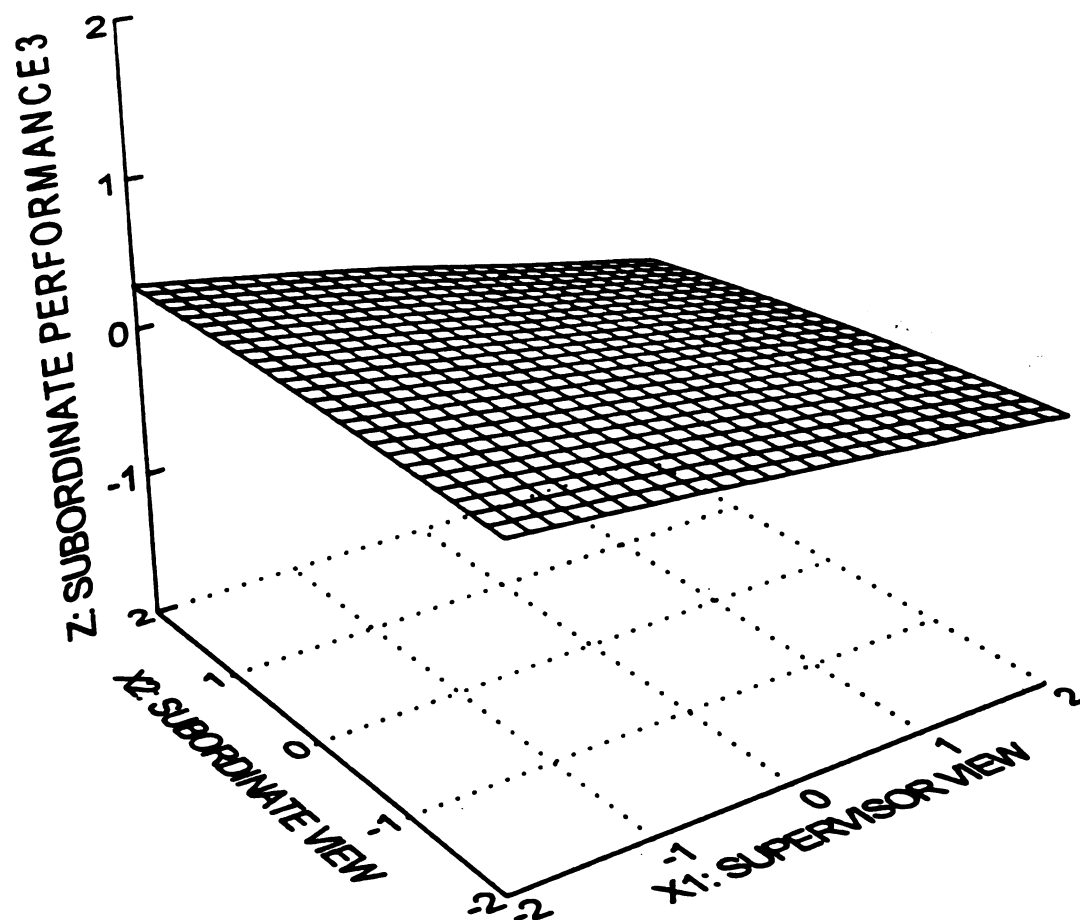
**Figure 13. MAIN EFFECTS: SUBORDINATE PERFORMANCE1
REGRESSED ON SUBORDINATE ABSENCE POLYNOMIALS**

$$Z = .076 - .191X_1 + .063X_2 - .035X_1^2 - .022X_1X_2 + .003X_2^2$$



**Figure 14. MAIN EFFECTS: SUBORDINATE PERFORMANCE2
REGRESSED ON SUBORDINATE ABSENCE POLYNOMIALS**

$$Z = .004 - .071X_1 - .092X_2 + .008X_1^2 - .004X_1X_2 - .016X_2^2$$



**Figure 15. MAIN EFFECTS: SUBORDINATE PERFORMANCE3
REGRESSED ON SUBORDINATE ABSENCE POLYNOMIALS**

$$Z = .034 - .124X_1 - .007X_2 - .005X_1^2 - .019X_1X_2 - .008X_2^2$$

variables. In particular, path c in the mediation model will be reviewed with a focus on comparison of the predictive power of three difference scores and their competing actual similarity polynomial sets for each perceptual DV of interest.

Dependent Variables Subordinate Performance, Attitudes, and Absenteeism Regressed on Supervisor and Subordinate Education in Difference Score and Polynomial Form

Tables 10-12 present the statistical results for the subordinate performance variables regressed on supervisor and subordinate education (Y_1 , Y_2 , Y_1^2 , Y_1Y_2 , Y_2^2). Clearly, the difference scores are not substantially better predictors of subordinate performance; their constraints are rejected in favor of the polynomial set, as the F-tests indicate. Moreover, the polynomial regression models significantly explain variance in the dependent performance measures. Respectively, the polynomial regressors account for 4.2% of the variance in subordinate performance₁, 4.1% of the variance in subordinate performance₂ and 6.0% of the variance in subordinate performance₃, all being significant at $p < .05$ or less. Note that in models 1 and 3, a substantial amount of the explanatory power is based on the cross-product term, suggesting an interaction process.

Table 10. MAIN EFFECTS: SUBORDINATE PERFORMANCE REGRESSED ON DIFFERENCE SCORES AND POLYNOMIAL EQUATIONS FOR DYADIC EDUCATION LEVELS

ACTUAL SIMILARITY CONGRUENCE VARIABLE	WORK OUTCOME Z_j	DIFFERENCE SCORE	CONSTRAINED EQUATION (1)				UNCONSTRAINED EQUATION (2)				R ² 's F-TEST ¹ : CONSTRAINED VS UNCONSTRAINED			
			B	R ²	R ² *	N	Y ₁	Y ₂	Y ₁ ²	Y ₁ Y ₂			Y ₂ ²	R ²*	R^{2}
Education	Subordinate Performance1	(Y ₁ - Y ₂) |Y ₁ - Y ₂| (Y ₁ - Y ₂) ²	-.070 .092 .034	.012 .005 .007	.000 .000 .000	183	-.020	.092 ^a	-.065	-.135 ^a	.022	.069 ^b	.042	4.472 ^b (3.280 ^b ,6.559 ^c) 4.472 ^b 4.472 ^b
	Subordinate Performance2	(Y ₁ - Y ₂) |Y ₁ - Y ₂| (Y ₁ - Y ₂) ²	.050 .089 .039 ^a	.012 .003 .018 ^a	.000 .000 .001	177	.051	-.052	-.080	-.056	.064 ^b	.067 ^b	.041	3.698 ^b (2.245,4.490 ^c) 3.698 ^b 3.531 ^b
	Subordinate Performance3	(Y ₁ - Y ₂) |Y ₁ - Y ₂| (Y ₁ - Y ₂) ²	-.009 .092 ^a .038 ^a	.001 .003 .020 ^a	.000 .001 .003	177	.018	.019	-.073	-.094 ^a	.044 ^a	.087 ^c	.060	5.457 ^c (3.137 ^b ,6.274 ^c) 5.429 ^c 5.245 ^c

Y₁ = Supervisor's Response; Y₂ = Subordinate's Response.

^a = .1 < p < .05; ^b = .05 < p < .01; ^c = .01 < p < .001; ^d = p < .001.

Performance1: Supervisors View of Employee's Performance; Performance2: Employee's View; Performance3: Unweighted Mean of Performance1 & 2.

R²*: R² Adjusted Formula.

¹F-values in parentheses: standard F-test between non-adjusted R²s for largest significant difference score R² or 0, whichever is larger; numerator degrees of freedom (df) = 4 for first F-value in parentheses for most conservative estimate and numerator degrees of freedom (df) = 2 for second F-value in parentheses as an adjustment for implied constraints (variables) in difference scores.

Table 11. MAIN EFFECTS: SUBORDINATE ATTITUDES REGRESSED ON DIFFERENCE SCORES AND POLYNOMIAL EQUATIONS FOR DYADIC EDUCATION LEVELS

ACTUAL SIMILARITY CONGRUENCE VARIABLE	WORK OUTCOME Z_j	DIFFERENCE SCORE	CONSTRAINED EQUATION (1)			UNCONSTRAINED EQUATION (2)							R ² *s F-TEST ¹ : CONSTRAINED VS UNCONSTRAINED
			B	R ²	R ² *	N	Y_1	Y_2	Y_1^2	Y_1Y_2	Y_2^2	R ²	R ² *
Education	Subordinate Attitudes1	$(Y_1 - Y_2)$	-.036	.003	.000	183	.229 ^c	.102 ^a	.075	.014	.016	.082 ^c	.056
		$|Y_1 - Y_2|$	.078	.005	.000								5.250 ^c
		$(Y_1 - Y_2)^2$	.022	.002	.000								5.250 ^c
	Subordinate Attitudes2	$(Y_1 - Y_2)$	.024	.001	.000	180	.129	-.001	.075	-.076	.037	.019	.000
		$|Y_1 - Y_2|$	.073	.003	.000								No Meaningful Difference
		$(Y_1 - Y_2)^2$	.045	.008	.000								
	Subordinate Attitudes3	$(Y_1 - Y_2)$	-.001	.000	.000	180	.189 ^c	-.047	.081	-.040	.030	.069 ^b	.042
		$|Y_1 - Y_2|$	.085	.008	.000								3.814 ^b
		$(Y_1 - Y_2)^2$	.038	.011	.000								3.814 ^b

Y_1 = Supervisor's Response; Y_2 = Subordinate's Response.

^a = $.1 < p < .05$; ^b = $.05 < p < .01$; ^c = $.01 < p < .001$; ^d = $p < .001$.

Attitudes1: Supervisors View of Subordinate's Attitudes; Attitudes2: Subordinate's Self-View; Attitudes3: Unweighted Mean of Attitudes1 & 2.

R²*: R² Adjusted Formula.

¹F-values in parentheses: standard F-test between non-adjusted R²s for largest significant difference score R² or 0, whichever is larger; numerator degrees of freedom (df) = 4 for first F-value in parentheses for most conservative estimate and numerator degrees of freedom (df) = 2 for second F-value in parentheses as an adjustment for implied constraints (variables) in difference scores.

Table 12. MAIN EFFECTS: SUBORDINATE ABSENTEEISM REGRESSED ON DIFFERENCE SCORES AND POLYNOMIAL EQUATIONS FOR DYADIC EDUCATIONAL LEVELS

ACTUAL SIMILARITY CONGRUENCE VARIABLE	WORK OUTCOME Z_j	DIFFERENCE SCORE	CONSTRAINED EQUATION (1)				UNCONSTRAINED EQUATION (2)						R ² *	R ²	Y ₁ Y ₂	Y ₁ ²	Y ₂ ²	R ²	R ² *	R ² *	F-TEST: CONSTRAINED VS UNCONSTRAINED
			B	R ²	R ² *	N	Y ₁	Y ₂	Y ₁ ²	Y ₁ Y ₂	Y ₂ ²										
Education	Subordinate	(Y ₁ - Y ₂)	-.009	.000	.000	183	-.051	-.004	-.001	-.073	.000			.000							No Meaningful Difference
	Absenteeism1	|Y ₁ - Y ₂|	.021	.000	.000																
		(Y ₁ - Y ₂) ²	.013	.001	.000																
	Subordinate	(Y ₁ - Y ₂)	-.106 ^a	.019 ^a	.002	180	-.088	.188 ^a	.067	.017	-.023			.000							No Meaningful Difference
	Absenteeism2	|Y ₁ - Y ₂|	-.007	.000	.000																
		(Y ₁ - Y ₂) ²	-.010	.000	.000																
	Subordinate	(Y ₁ - Y ₂)	-.056	.008	.000	180	-.063	.056	.034	-.025	-.044			.000							No Meaningful Difference
	Absenteeism3	|Y ₁ - Y ₂|	.004	.000	.000																
		(Y ₁ - Y ₂) ²	.000	.000	.000																

Y₁ = Supervisor's Response; Y₂ = Subordinate's Response.

^a = .1 < p < .05; ^b = .05 < p < .01; ^c = .01 < p < .001; ^d = p < .001.

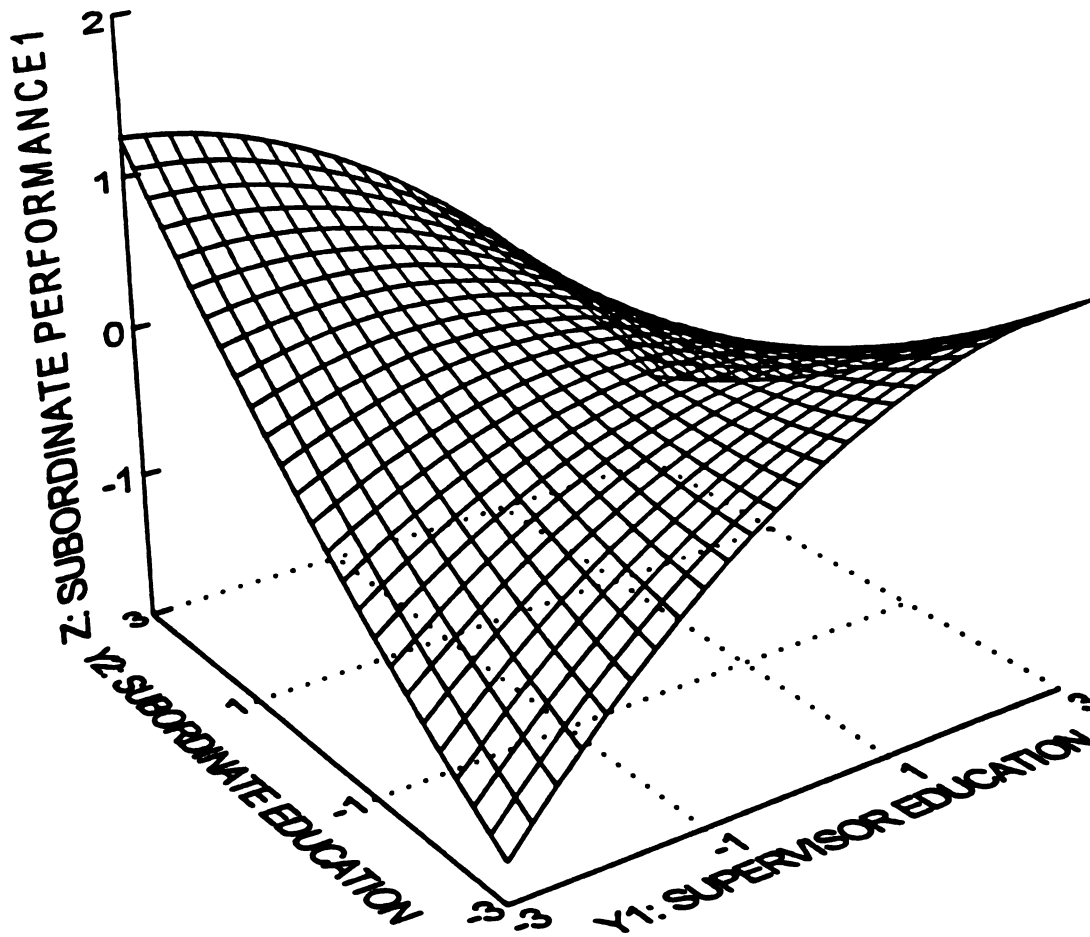
Absenteeism1: Supervisors View of Subordinate's Absenteeism; Absenteeism2: Subordinate's Self-View; Absenteeism3: Unweighted Mean of Absenteeism 1 & 2.

R²*: R² Adjusted Formula.

The visual results show that the relationship between dyadic education levels and subordinate performance can be interpreted similarly. The surface in Figure 16 indicates that at very low and very high levels of educational congruence, supervisors rate their employees' performance as quite poor; this same finding obtains in Figure 17 where subordinates rate their own child-care influenced performance. Interestingly, Figure 16 reveals that educational incongruence in dyads generates the highest performance scores (see the northwest and northeast peaks), particularly when supervisors' education is minimal and subordinate education is at its maximum. The latter trend is not nearly as profound in Figure 16. Finally, averaging these relations in Figure 18 mildly attenuates the extreme peaks found in Figure 15, although educational dissimilarity continues to be predictive of enhanced subordinate performance. This curious result provides no support for **Hypothesis 10**, so that:

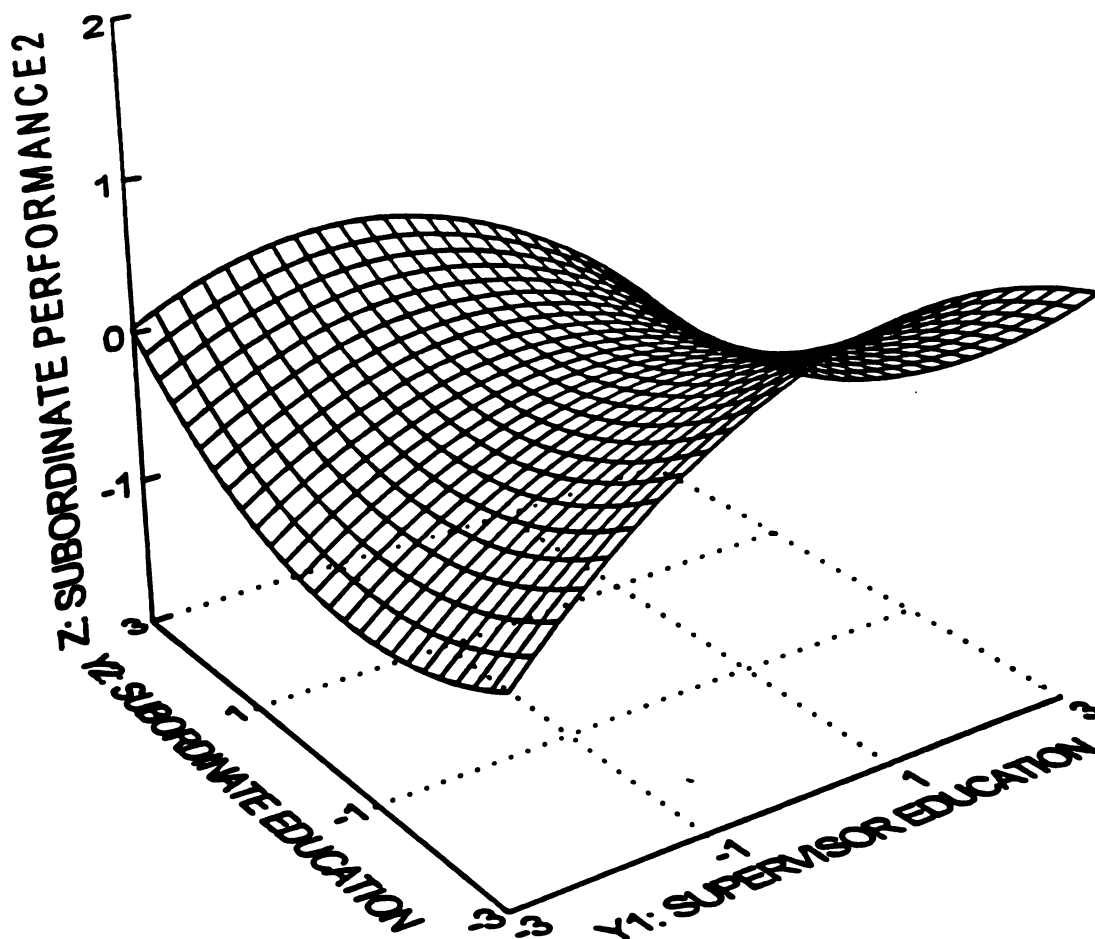
As subordinate and supervisor become more similar in their educational achievements, subordinates actually receive lower performance ratings relative to dyads dissimilar in education.

With respect to the attitudinal dependent measures, difference scores are clearly useless predictors, as adjusted R^2 is less than 1% and not



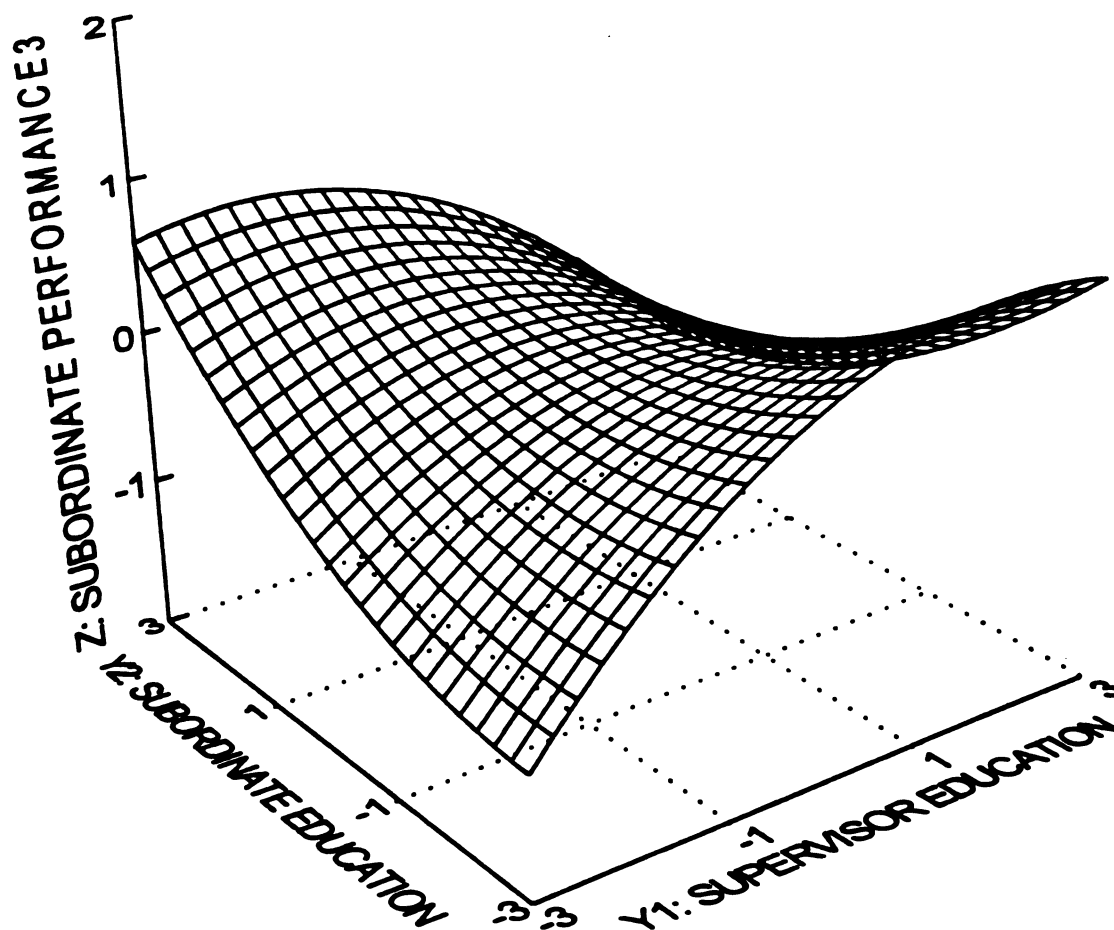
**Figure 16. MAIN EFFECTS: SUBORDINATE PERFORMANCE1
REGRESSED ON DYADIC EDUCATION LEVELS**

$$Z = .086 - .020X_1 + .092X_2 - .065X_1^2 - .135X_1X_2 + .022X_2^2$$



**Figure 17. MAIN EFFECTS: SUBORDINATE PERFORMANCE2
REGRESSED ON DYADIC EDUCATION LEVELS**

$$Z = -.021 + .051X_1 - .052X_2 - .080X_1^2 + .064X_1X_2 + .067X_2^2$$

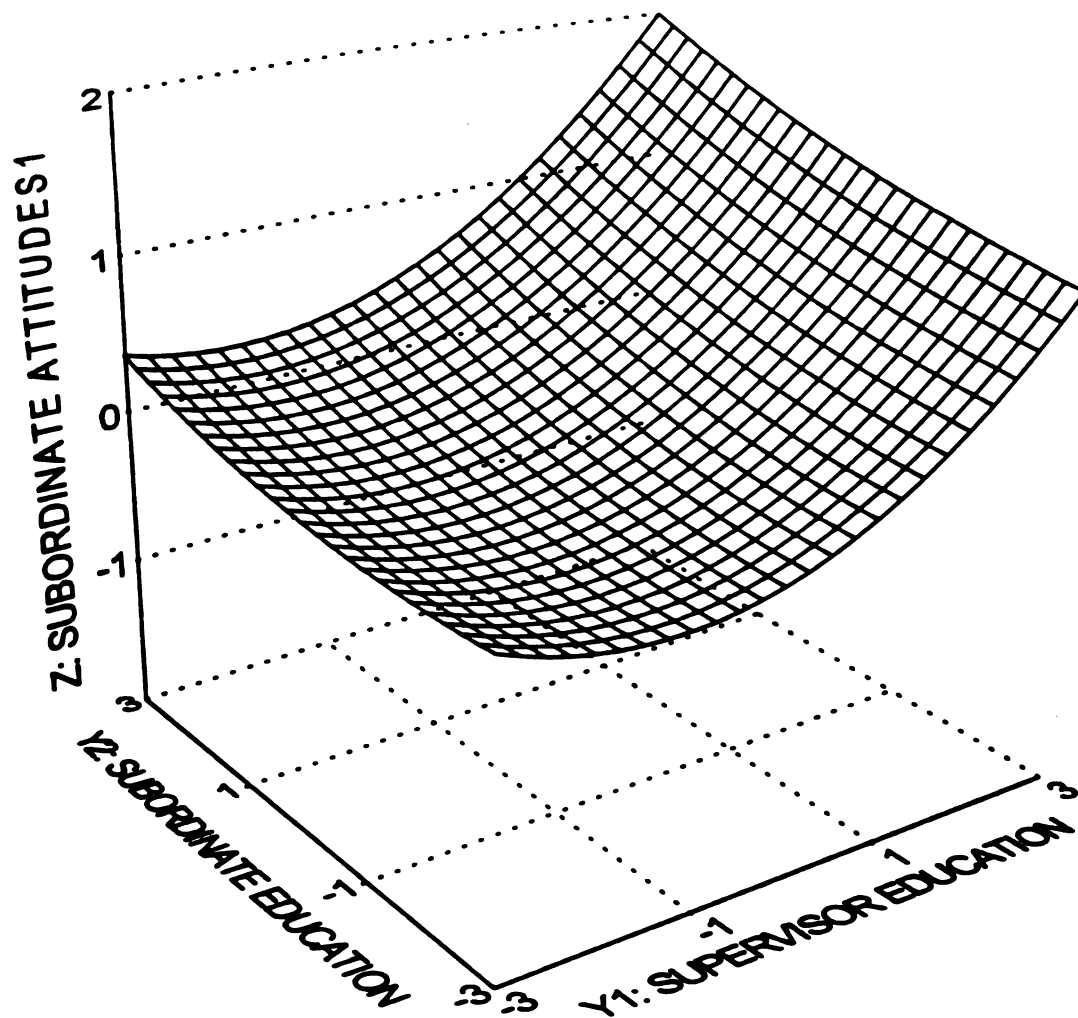


**Figure 18. MAIN EFFECTS: SUBORDINATE PERFORMANCE3
REGRESSED ON DYADIC EDUCATION LEVELS**

$$Z = .005 + .018X_1 + .019X_2 - .073X_1^2 - .094X_1X_2 + .044X_2^2$$

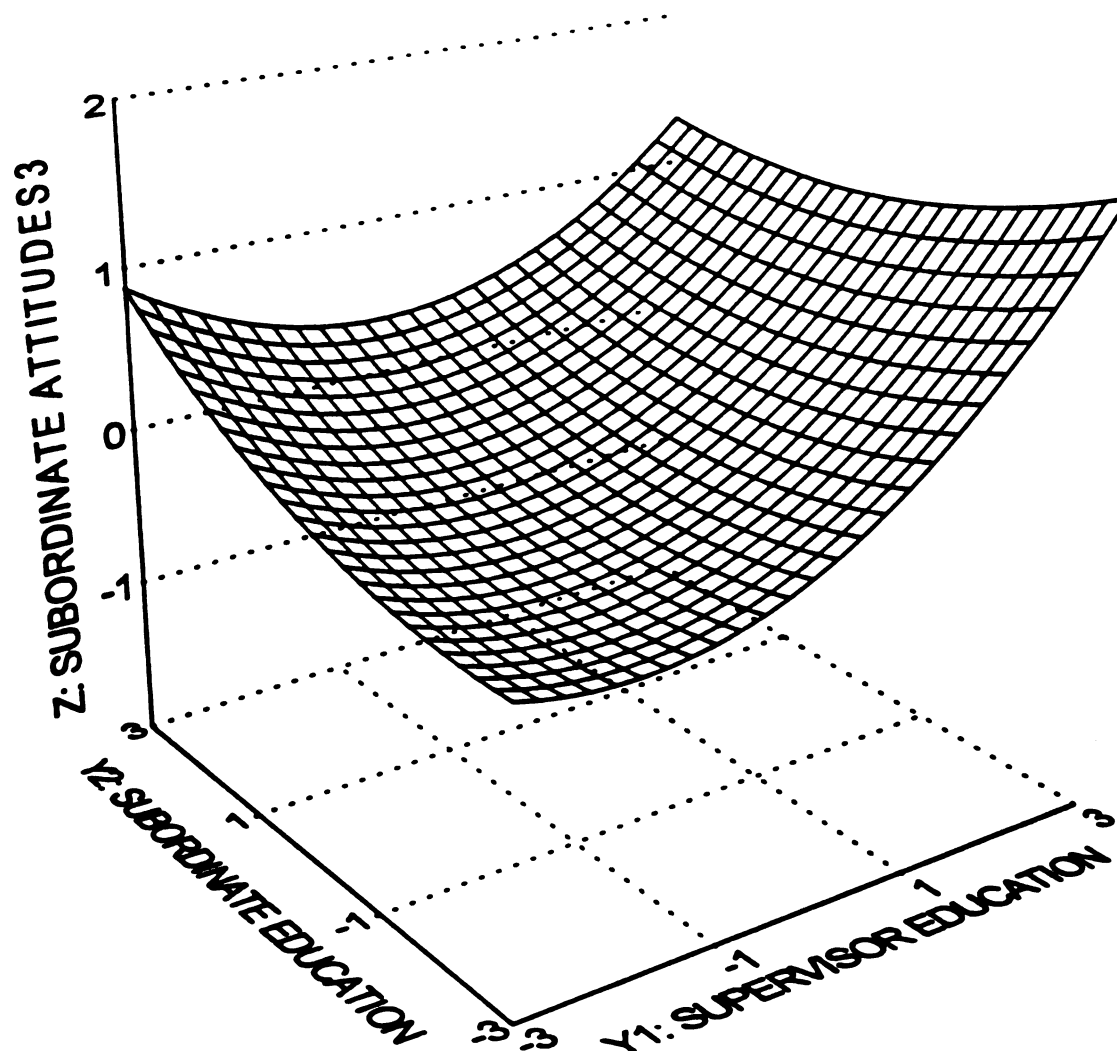
significant (see Table 11). The educational polynomial set, in contrast, explains 5.6% of the variance in subordinate attitudes¹ ($.01 < p < .001$) and 4.2% of the variance in the averaged attitudes³ ($.05 < p < .01$), while all F-tests show the R^2 s as being significantly from zero. The general relationship patterns are quite similar, as Figures 19 and 20 illustrate, although only the supervisor linear term in model 3 is significant, compared to model 1 in which both linear terms have significant coefficients. From a minimum point in the negative corner of the Y_1 , Y_2 plane, the graphs trace an approximate $Y_1 = Y_2$ line such that supervisory ratings of subordinate attitudes toward work and child-care conflict increase as both parties' education increases. This relationship does not hold as dyadic education levels diminish jointly. Moreover, educational dissimilarity is also associated with more favorable perceptions of subordinate attitudes, particularly in Figure 20. Apparently, dyadic similarity does not improve subordinate attitudes, where both members have below average education. Hence, **Hypothesis 11** is only partially supported:

As subordinate and supervisor become more similar in their educational achievements at high levels of education, subordinates hold more favorable attitudes toward juggling work and child-care responsibilities.



**Figure 19. MAIN EFFECTS: SUBORDINATE ATTITUDES1
REGRESSED ON DYADIC EDUCATION LEVELS**

$$Z = .054 + .229X_1 + .102X_2 + .075X_1^2 + .014X_1X_2 + .016X_2^2$$



**Figure 20. MAIN EFFECTS: SUBORDINATE ATTITUDES3
REGRESSED ON DYADIC EDUCATION LEVELS**

$$Z = -.054 + .189X_1 + .047X_2 + .081X_1^2 - .040X_1X_2 + .030X_2^2$$

Finally, the results in Table 12 provide no evidence that educational similarity between supervisors and their subordinates ameliorates subordinate absenteeism caused by child-care difficulties. **Hypothesis 12** is not supported:

As subordinate and supervisor become more similar in their educational achievements, more favorable employee views of child-care generated absenteeism do not result.

Dependent Variables Subordinate Performance, Attitudes, and Absenteeism Regressed on Supervisor and Subordinate Organizational Tenure in Difference Score and Polynomial Form

The results for this portion of the analysis are displayed in Tables 13-15. First, organizational tenure difference scores significantly explained none of the variance in the subordinate performance variables via adjusted R^2 . The polynomial set for organizational tenure, however, did account for 5.0% of the variance in subordinate performance₁ and 4.7% of the variance in subordinate performance₃, both being significant at $.05 < p < .01$. Importantly, for model 3, the regression without mean substitution evinced almost the exact coefficient estimates as its corollary regression, and differed from the algebraic difference score according to the F-test adjusted for implied constraints. In these regressions, the cross

Table 13. MAIN EFFECTS: SUBORDINATE PERFORMANCE REGRESSED ON DIFFERENCE SCORES AND POLYNOMIAL EQUATIONS FOR DYADIC ORGANIZATIONAL TENURE

ACTUAL SIMILARITY CONGRUENCE VARIABLE	WORK OUTCOME Z_j	DIFFERENCE SCORE	CONSTRAINED EQUATION (1)				UNCONSTRAINED EQUATION (2)							R ² 's F-TEST ¹ : CONSTRAINED VS UNCONSTRAINED
			B	R ²	R ² *	N	Y ₁	Y ₂	Y ₁ ²	Y ₁ Y ₂	Y ₂ ²	R ²	R ² *	
Organizational Tenure	Subordinate Performance1	(Y ₁ – Y ₂)	-.009	.011	.000	183	-.020	-.008	.011	-.003 ^c	-.002	.076 ^b	.050	4.711 ^d (3.640 ^b , 7.279 ^d)
		|Y ₁ – Y ₂|	-.006	.002	.000								4.711 ^d	
		(Y ₁ – Y ₂) ²	.000	.000	.000								4.711 ^d	
	Subordinate Performance2	(Y ₁ – Y ₂)	-.006	.011	.000	177	-.003	.008	.000	-.002	.000	.025	.000	No Meaningful Difference
		|Y ₁ – Y ₂|	.011	.010	.000									
		(Y ₁ – Y ₂) ²	.001	.012	.000									
	Subordinate Performance3	(Y ₁ – Y ₂)	-.007 ^a	.017 ^a	.000	177	-.005	.009	-.001 ^b	-.002 ^b	.001	.074 ^b	.047	4.217 ^b (2.631 ^a , 5.263 ^c)
		(Y ₁ – Y ₂) [*]	-.007	.018	.004	143	-.009 ^a	.009	-.001	-.001	.001	.065 ^a	.031	1.909 (1.758, 3.517 ^b)
		|Y ₁ – Y ₂|	.002	.000	.000	177								4.217 ^b
		|Y ₁ – Y ₂ [*]	.000	.000	.000	143								2.191
		(Y ₁ – Y ₂) ²	.000	.004	.000	177								4.217 ^b
		(Y ₁ – Y ₂) ^{2*}	.000	.003	.000	143								2.191

Y₁ = Supervisor's Response; Y₂ = Subordinate's Response.

^a = .1 < p < .05; ^b = .05 < p < .01; ^c = .01 < p < .001; ^d = p < .001.

Performance1: Supervisors View of Employee's Performance; Performance2: Employee's View; Performance3: Unweighted Mean of Performance1 & 2.

R²*: R² Adjusted Formula.

^{*} = Mean Substitution Not Used for Missing Cases in Regression Model.

¹F-values in parentheses: standard F-test between non-adjusted R²'s for largest significant difference score R² or 0, whichever is larger; numerator degrees of freedom (df) = 4 for first F-value in parentheses for most conservative estimate and numerator degrees of freedom (df) = 2 for second F-value in parentheses as an adjustment for implied constraints (variables) in difference scores.

Table 14. MAIN EFFECTS: SUBORDINATE ATTITUDES REGRESSED ON DIFFERENCE SCORES AND POLYNOMIAL EQUATIONS FOR DYADIC ORGANIZATIONAL TENURE

ACTUAL SIMILARITY CONGRUENCE VARIABLE	WORK OUTCOME Z_j	DIFFERENCE SCORE	CONSTRAINED EQUATION (1)				UNCONSTRAINED EQUATION (2)							R2*s F-TEST: CONSTRAINED VS UNCONSTRAINED
			B	R ²	R ² *	N	Y_1	Y_2	Y_1^2	Y_1Y_2	Y_2^2	R ²	R ² *	
Organizational Tenure	Subordinate Attitudes1	$(Y_1 - Y_2)$.003	.001	.000	183	.007	-.005	.001*	-.003*	.001	.021	.000	No Meaningful Difference
		$|Y_1 - Y_2|$	.017	.012	.000								
		$(Y_1 - Y_2)^2$	.001	.014	.000								
	Subordinate Attitudes2	$(Y_1 - Y_2)$	-.012	.013	.000	180	-.006	.014	.001	-.002	.000	.022	.000	No Meaningful Difference
		$|Y_1 - Y_2|$	.025*	.021*	.005								
		$(Y_1 - Y_2)^2$	.001*	.016	.000								
	Subordinate Attitudes3	$(Y_1 - Y_2)$	-.004	.003	.000	180	.000	.004	.001	-.003*	.000	.025	.000	No Meaningful Difference
		$|Y_1 - Y_2|$	.021 ^b	.028 ^b	.011								
		$(Y_1 - Y_2)^2$	.001 ^b	.025 ^b	.003								

Y_1 = Supervisor's Response; Y_2 = Subordinate's Response.

* = .1 < p < .05; ^b = .05 < p < .01; ^c = .01 < p < .001; ^d = p < .001.

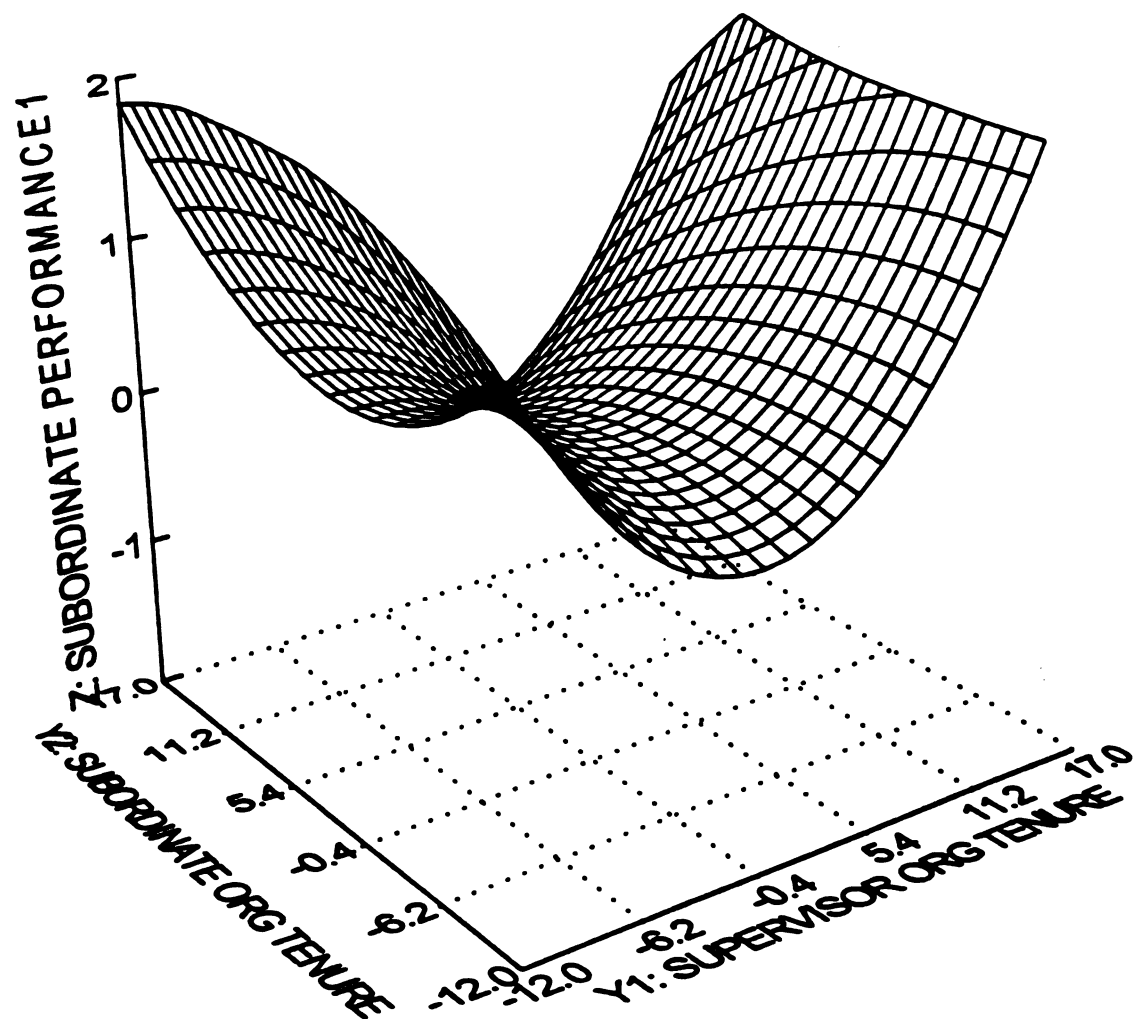
Attitudes1: Supervisors View of Subordinate's Attitudes; Attitudes2: Subordinate's Self-View; Attitudes3: Unweighted Mean of Attitudes1 & 2.

R²*: R² Adjusted Formula.

product and squared terms are the most powerful explanatory influences on the dependent measures.

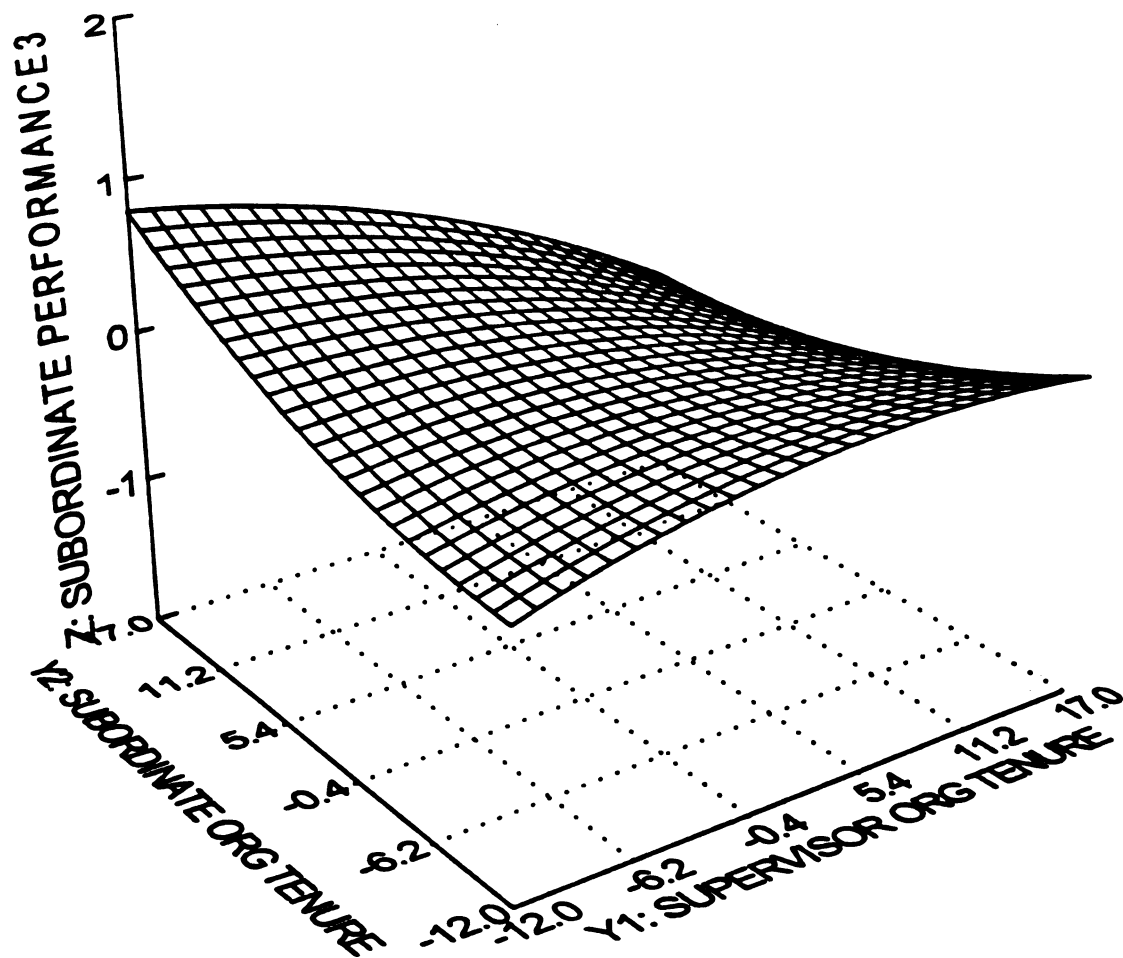
Visual inspection of Figure 21 shows an extreme convexity. That is, along the $Y_1 \approx 0$ line, it appears that changes in Y_2 have virtually no effect on Z . In other words, in dyads where supervisors have about 13 years of organizational tenure, subordinates receive low performance ratings irrespective of their tenure. Above this tenure level, both educational similarity and dissimilarity are associated with more favorable performance ratings, while below this tenure level, dissimilarity is associated with better performance ratings. This puzzling result suggests that at both higher and lower levels of tenure, supervisors tend to assign better performance ratings to their subordinates. In analyzing this relationship through averaged subordinate performance³ in Figure 22² the flat surface observed suggests very little influence of dyadic tenure similarity on subordinate performance ratings. In either case, the effect of

² Importantly, the similarity between the regression equations for model 3 where mean substitution is not used in one of the estimated equations substantiates the integrity of the mean substitution method in this analysis. That is, increasing the number of cases in this fashion does seem to significantly change the coefficient estimates.



**Figure 21. MAIN EFFECTS: SUBORDINATE PERFORMANCE1
REGRESSED ON DYADIC ORGANIZATIONAL TENURE**

$$Z = .120 - .020X_1 - .008X_2 + .011X_1^2 - .003X_1X_2 - .002X_2^2$$



**Figure 22. MAIN EFFECTS: SUBORDINATE PERFORMANCE3
REGRESSED ON DYADIC ORGANIZATIONAL TENURE**

$$Z = .029 - .005X_1 + .009X_2 - .001X_1^2 - .002X_1X_2 + .001X_2^2$$

dyadic tenure similarity does not seem to be distinguishable from dissimilarity, such that **Hypothesis 14a** is not clearly supported:

Dyadic organizational tenure similarity does not appear to generate significantly higher ratings of subordinate performance than dyads in which the tenure of the parties diverges.

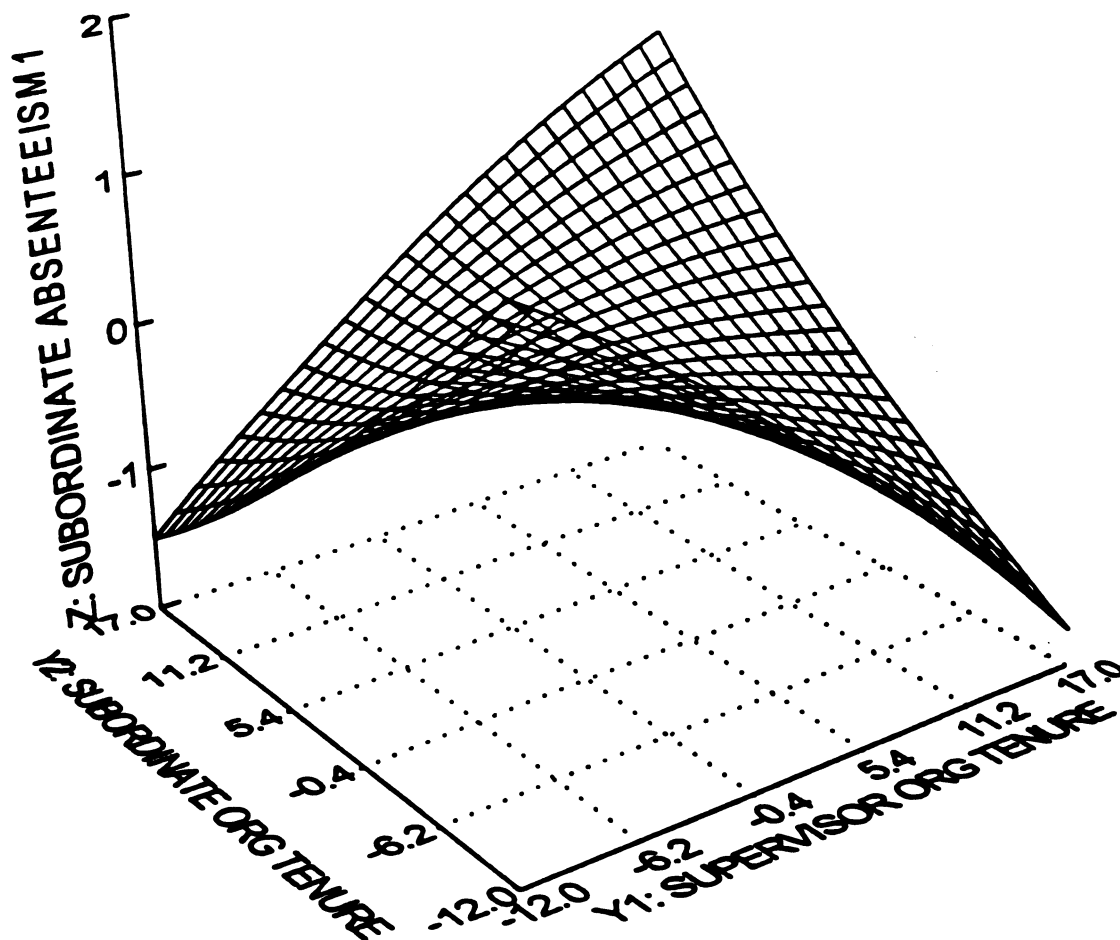
Table 14 reveals that neither organizational tenure difference scores or polynomials significantly predict subordinate attitudes toward managing work and child-care responsibilities. Thus, **Hypothesis 15a** is not supported:

Dyadic organizational tenure similarity does not generate more favorable subordinate attitudes toward managing work and child-care responsibilities compared to dyads in which the tenure of the parties' diverges.

Significant results were discovered where organizational tenure polynomial variables were regressors for subordinate child-care related absenteeism, although some of the associated difference scores were also significant. Table 15 displays these findings. The constraints of the difference scores are firmly rejected in model 1, which displays significant coefficients for both linear terms and the cross-product term. Importantly, the reduced sample regression produced almost identical coefficients as the regression with mean substitution and is superior to

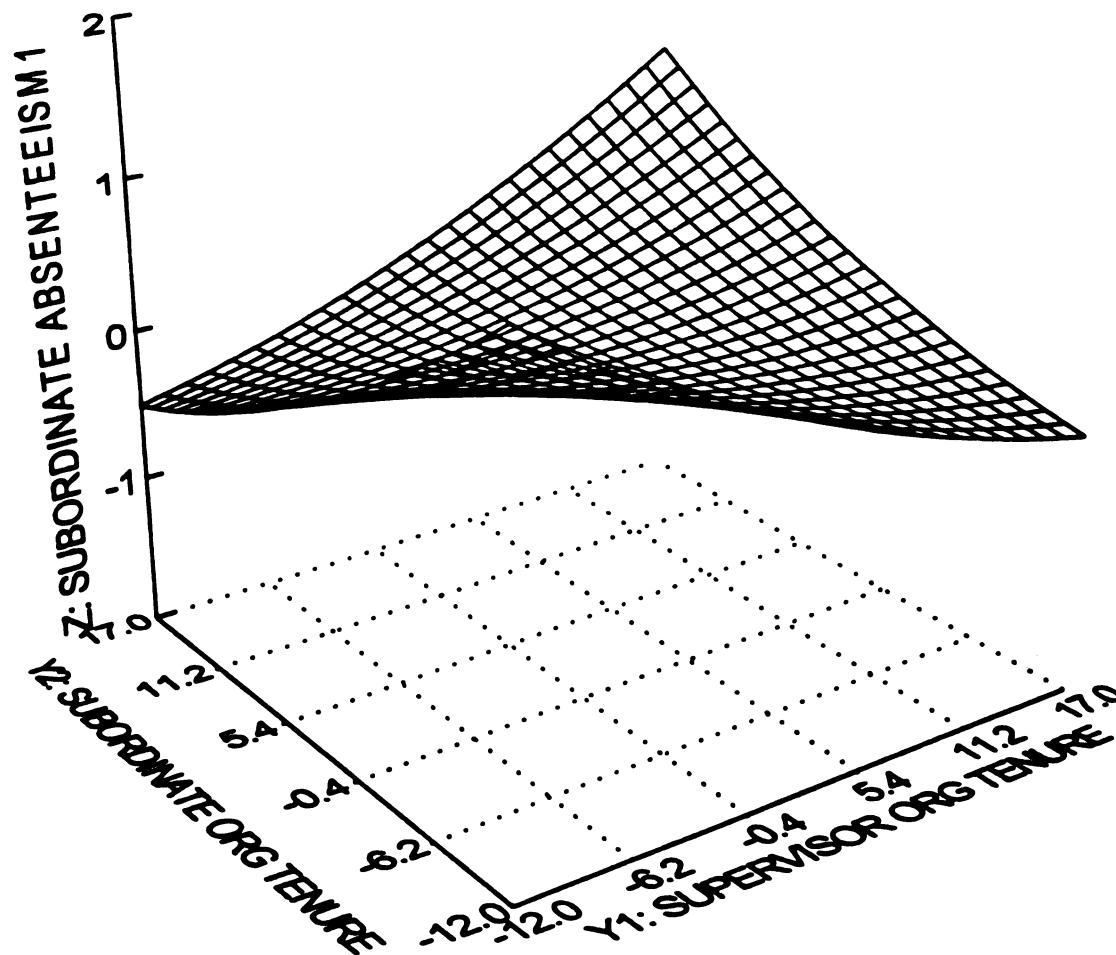
difference scores in 2 of 3 F-tests. Note that absolute and squared difference scores are the most effective predictors of subordinate absenteeism², so that their implied constraints hold. The third model shows that the constraints of the difference score indices are rejected for the mean substitution regression, with less support for the non-substituted regression. Again, the latter regression produced coefficients quite similar to its case enlarged counterpart.

Figures 23-26 present the 3-dimensional surfaces produced by the equations. The equations estimated for model 1 show significantly negative linear effects, suggesting an inverse relationship between these variables and subordinate absenteeism. Given the positive cross-product coefficient, the joint effect of the dyadic tenure variables is to predict the most severe absenteeism difficulties at extreme tenure levels. Figures 23 and 24 show this pattern: along the $Y_1 = Y_2$ line, dyads with extremely high and extremely low tenures for both supervisor and subordinate are associated with the most egregious absenteeism, while dyadic tenure similarity around mean years of tenure reflects a much reduced absence problem for subordinates. Along the $-Y_1 = Y_2$ line, however, the most extreme dyadic tenure dissimilarity is associated with minimal child-care caused absenteeism. Moreover, the visuals in Figures 25 and 26 where Z



**Figure 23. MAIN EFFECTS: SUBORDINATE ABSENTEEISM1
REGRESSED ON DYADIC ORGANIZATIONAL TENURE**

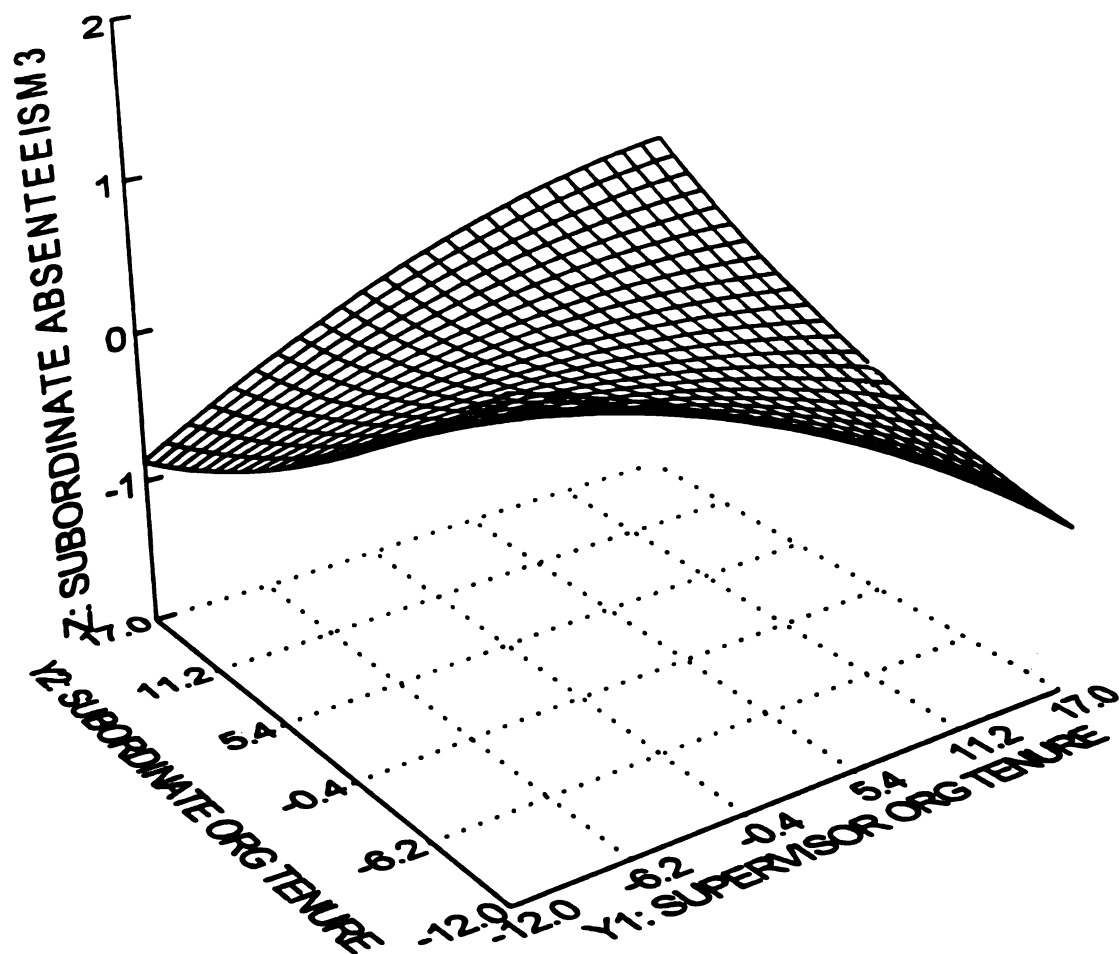
$$Z = -.087 - .021X_1 - .022X_2 - .001X_1^2 + .007X_1X_2 + .001X_2^2$$



**Figure 24. MAIN EFFECTS: SUBORDINATE ABSENTEEISM1
REGRESSED ON DYADIC ORGANIZATIONAL TENURE***

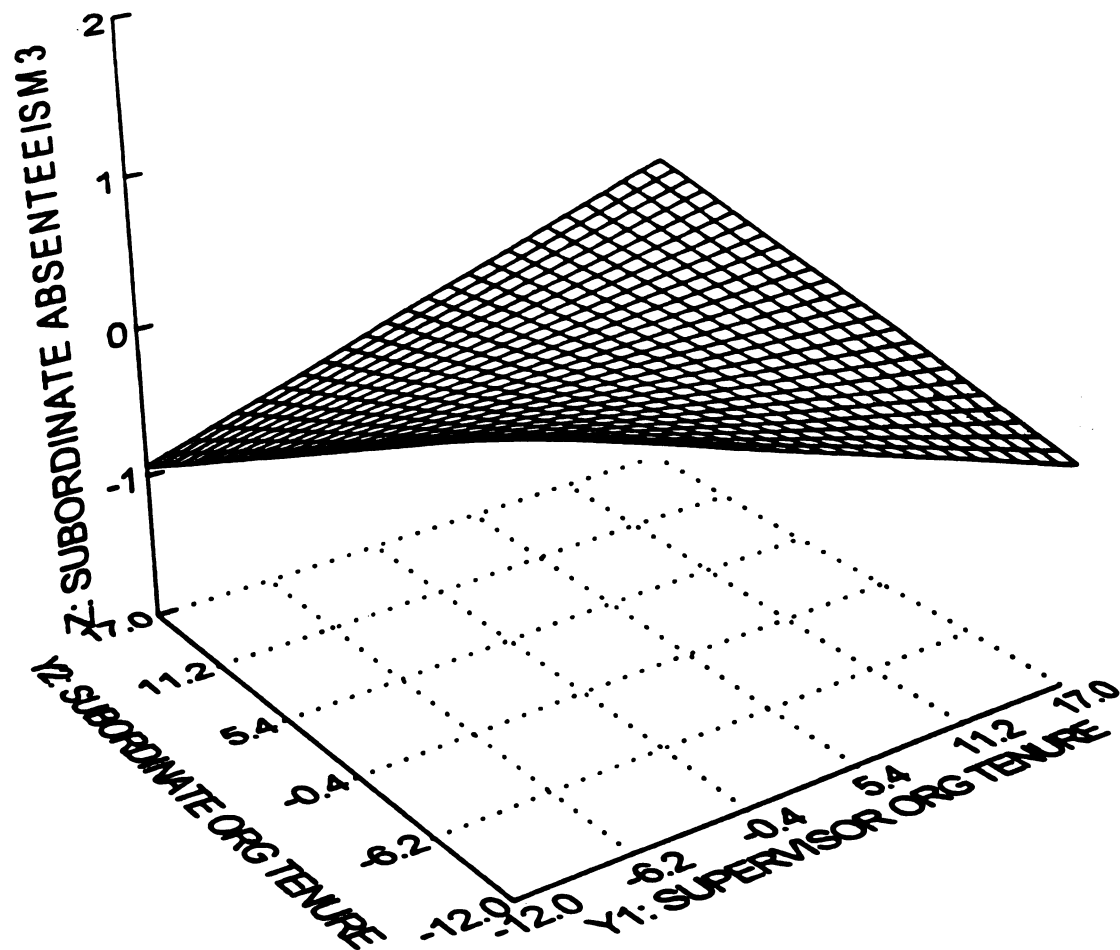
$$Z = .074 - .015X_1 - .022X_2 + .001X_1^2 + .004X_1X_2 + .001X_2^2$$

***Regression Model Analyzed With No Mean Substitution**



**Figure 25. MAIN EFFECTS: SUBORDINATE ABSENTEEISM3
REGRESSED ON DYADIC ORGANIZATIONAL TENURE**

$$Z = .025 - .013X_1 - .022X_2 - .001X_1^2 + .004X_1X_2 + .001X_2^2$$



**Figure 26. MAIN EFFECTS: SUBORDINATE ABSENTEEISM3
REGRESSED ON DYADIC ORGANIZATIONAL TENURE***

$$Z = -.036 - .007X_1 - .022X_2 - .000X_1^2 + .003X_1X_2 + .000X_2^2$$

***Regression Model Analyzed With No Mean Substitution**

is averaged views of subordinate absenteeism follow a similar trend, albeit somewhat attenuated. Again, these unanticipated findings are not supportive of **Hypothesis 16a**:

Dyadic organizational tenure similarity does not generate more favorable views of subordinates' child-care generated absenteeism compared to dyads in which the tenure of parties diverges.

Dependent Variables Subordinate Performance, Attitudes, and Absenteeism Regressed on Supervisor and Subordinate Position Tenure in Difference Score and Polynomial Form

The regression results for subordinate absenteeism regressed on position tenure difference scores and the polynomial set are reported in Tables 16-18. Clearly, position tenure difference scores and polynomials do not predict subordinates' performance or subordinates' attitudes, as none of the R^2 indices are substantially or significantly greater than zero. Moreover, it is not clear that difference scores and their implicit constraints are more appropriate predictors than the unconstrained model; the algebraic difference indices for subordinate performance² and performance³ are only marginally significant ($.10 < p < .05$). However, the algebraic difference score predicting attitudes² cannot be rejected.

Table 16. MAIN EFFECTS: SUBORDINATE PERFORMANCE REGRESSED ON DIFFERENCE SCORES AND POLYNOMIAL EQUATIONS FOR DYADIC POSITION TENURE

ACTUAL SIMILARITY CONGRUENCE VARIABLE	WORK OUTCOME Z_j	DIFFERENCE SCORE	CONSTRAINED EQUATION (1)				UNCONSTRAINED EQUATION (2)							R ² s F-TEST: CONSTRAINED VS UNCONSTRAINED
			B	R ²	R ² *	N	Y ₁	Y ₂	Y ₁ ²	Y ₁ Y ₂	Y ₂ ²	R ²	R ² *	
Position Tenure	Subordinate Performance1	(Y ₁ - Y ₂) |Y ₁ - Y ₂| (Y ₁ - Y ₂) ²	-.008 .011 .001	.007 .005 .005	.000 .000 .000	183	-.009 -.013	.000	-.001	.005 ^a	.028	.001	No Meaningful Difference	
	Subordinate Performance2	(Y ₁ - Y ₂) |Y ₁ - Y ₂| (Y ₁ - Y ₂) ²	.011 ^a -.002 .000	.021 ^a .000 .001	.004 .000 .000	178	-.008 .025 ^b	-.001	-.001	-.004 ^a	.041	.013	No Meaningful Difference	
	Subordinate Performance3	(Y ₁ - Y ₂) |Y ₁ - Y ₂| (Y ₁ - Y ₂) ²	-.009 ^a .005 .000	.018 ^a .002 .002	.001 .000 .000	178	-.007 .004	-.001	-.001	.001	.022	.000	No Meaningful Difference	

Y₁ = Supervisor's Response; Y₂ = Subordinate's Response.

^a = .1 < p < .05; ^b = .05 < p < .01; ^c = .01 < p < .001; ^d = p < .001.

Performance1: Supervisors View of Employee's Performance; Performance2: Employee's View; Performance3: Unweighted Mean of Performance 1 & 2.
R²: R² Adjusted Formula.

Table 17. MAIN EFFECTS: SUBORDINATE ATTITUDES REGRESSED ON DIFFERENCE SCORES AND POLYNOMIAL EQUATIONS FOR DYADIC POSITION TENURE

ACTUAL SIMILARITY CONGRUENCE VARIABLE	WORK OUTCOME Z_j	DIFFERENCE SCORE	CONSTRAINED EQUATION (1)				UNCONSTRAINED EQUATION (2)						R ² * F-TEST: CONSTRAINED VS UNCONSTRAINED
			B	R ²	R ² *	N	Y_1	Y_2	Y_1^2	Y_1Y_2	Y_2^2	R ²	R ² *
Position Tenure	Subordinate Attitudes1	$(Y_1 - Y_2)$	.001	.000	.000	183	-.005	-.007	.003	-.001	.002	.013	.000
		$|Y_1 - Y_2|$	.018	.010	.000								No Meaningful Difference
		$(Y_1 - Y_2)^2$	.001	.008	.000								
	Subordinate Attitudes2	$(Y_1 - Y_2)$	.024 ^c	.038 ^c	.022	180	-.020	.021	.000	.003	.002	.042	.014
		$|Y_1 - Y_2|$	-.004	.000	.000								No Meaningful Difference
		$(Y_1 - Y_2)^2$	.000	.000	.000								
	Subordinate Attitudes3	$(Y_1 - Y_2)$	-.011 ^a	.015 ^a	.000	180	-.011	.008	.001	.001	.002	.013	.000
		$|Y_1 - Y_2|$	.007	.002	.000								No Meaningful Difference
		$(Y_1 - Y_2)^2$	.001	.002	.000								

Y_1 = Supervisor's Response; Y_2 = Subordinate's Response.
* = .1 < p < .05; ^b = .05 < p < .01; ^c = .01 < p < .001; ^d = p < .001.
Attitudes1: Supervisors View of Subordinate's Attitudes; Attitudes2: Subordinate's Self-View; Attitudes3: Unweighted Mean of Attitudes1 & 2.
R²*: R² Adjusted Formula.

Table 18. MAIN EFFECTS: SUBORDINATE ABSENTEEISM REGRESSED ON DIFFERENCE SCORES AND POLYNOMIAL EQUATIONS FOR DYADIC POSITION TENURE

ACTUAL SIMILARITY CONGRUENCE VARIABLE	WORK OUTCOME Z_j	DIFFERENCE SCORE	CONSTRAINED EQUATION (1)			UNCONSTRAINED EQUATION (2)							R ² *s F-TEST ¹ : CONSTRAINED VS UNCONSTRAINED	
			B	R ²	R ² *	N	Y ₁	Y ₂	Y ₁ ²	Y ₁ Y ₂	Y ₂ ²	R ²		R ² *
Position Tenure	Subordinate Absenteeism1	(Y ₁ - Y ₂)	.001	.000	.000	183	-.008	-.034 ^a	-.003	.002	.004	.035 ^c	.008	No Meaningful Difference
		|Y ₁ - Y ₂|	-.023	.013	.000									
		(Y ₁ - Y ₂) ²	-.001	.010	.000									
	Subordinate Absenteeism2	(Y ₁ - Y ₂)	-.024 ^c	.037 ^c	.020	181	.016	-.062 ^d	-.001	.002	.006 ^a	.072 ^b	.045	2.291 (1.650,3.300 ^b) 1.230 (1.692,3.385 ^b) 4.123 ^b 2.484 ^b 4.123 ^b 2.484 ^b
		(Y ₁ - Y ₂) [*]	.018 ^a	.023 ^a	.009	143	.014	-.064 ^c	-.001	.000	.006 ^a	.069 ^a	.035	
		|Y ₁ - Y ₂|	-.014	.005	.000	181								
		|Y ₁ - Y ₂ [*]	-.010	.003	.000	143								
		(Y ₁ - Y ₂) ²	-.001	.005	.000	181								
		(Y ₁ - Y ₂) ^{2*}	-.001	.001	.000	143								
	Subordinate Absenteeism3	(Y ₁ - Y ₂)	.013 ^a	.016 ^a	.000	181	.004	-.050 ^c	-.002	.002	.005 ^b	.073 ^b	.046	4.219 ^b (2.690 ^b ,5.380 ^c) 4.219 ^b 4.219 ^b
		|Y ₁ - Y ₂|	-.019	.014	.000									
		(Y ₁ - Y ₂) ²	-.001	.011	.000									

Y₁ = Supervisor's Response; Y₂ = Subordinate's Response.

* = .1 < p < .05; ^b = .05 < p < .01; ^c = .01 < p < .001; ^d = p < .001.

Absenteeism1: Supervisors View of Subordinate's Absenteeism; Absenteeism2: Subordinate's Self-View; Absenteeism3: Unweighted Mean of Absenteeism1 & 2.

R²*: R² Adjusted Formula.

* = Mean Substitution Not Used for Missing Cases in Regression Model.

¹F-values in parentheses: standard F-test between non-adjusted R²s for largest significant difference score R² or 0, whichever is larger; numerator degrees of freedom (df) = 4 for first F-value in parentheses for most conservative estimate and numerator degrees of freedom (df) = 2 for second F-value in parentheses as an adjustment for implied constraints (variables) in difference scores.

Overall, **Hypothesis 14b** and **Hypothesis 15b** are not verified:

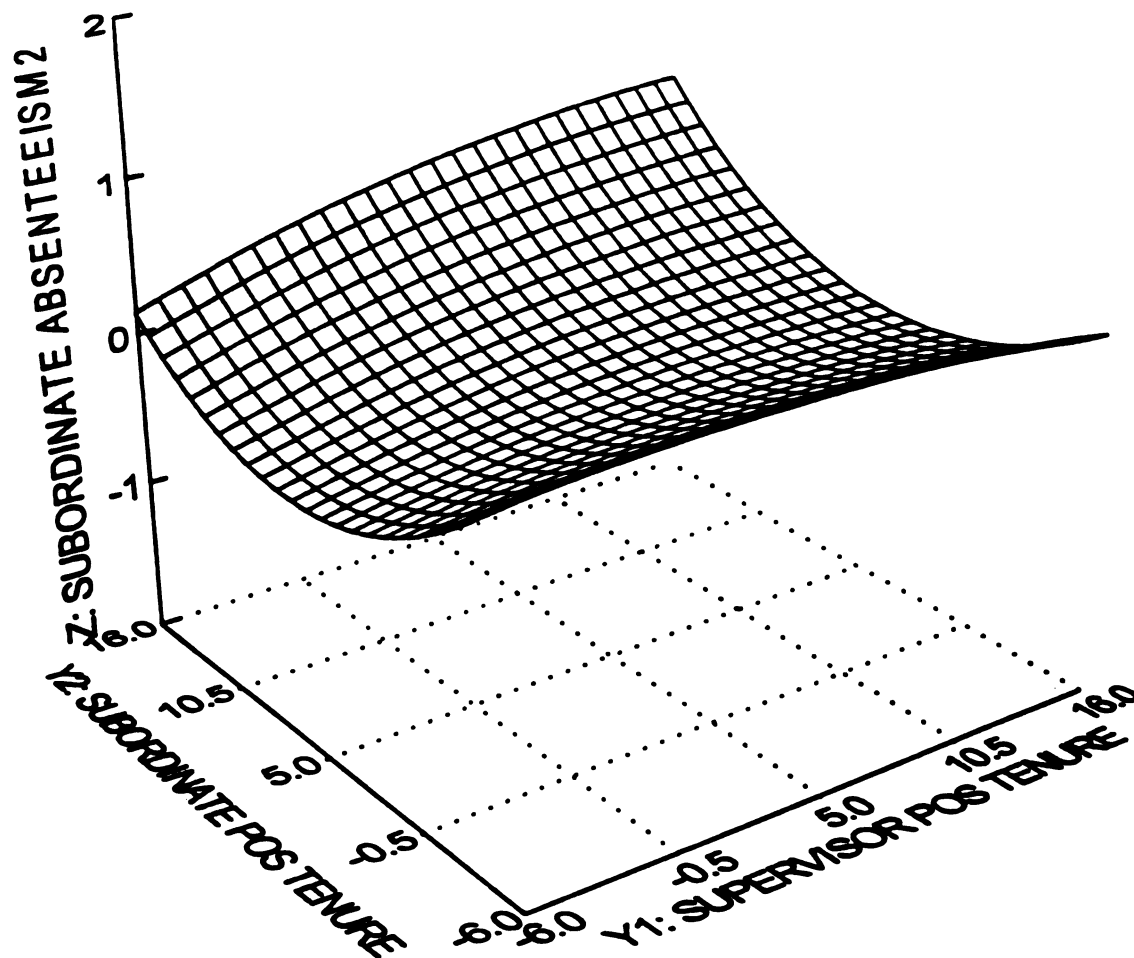
Dyadic position tenure similarity does not generate higher subordinate performance ratings compared to dyads in which the position tenure of the parties diverges.

Dyadic position tenure similarity does not generate more favorable subordinate attitudes toward managing work and child-care responsibilities compared to dyads in which the position tenure of the parties diverges.

Alternatively, results in Table 18 are significant. The position tenure polynomial set explains an adjusted 4.5% of the variance in subordinates' views of their own child-care engendered absence problems and an adjusted 4.6% of averaged perceptions of subordinates' absenteeism. According to the first 2 F-tests, difference scores appear to be just as robust as the polynomials in predicting subordinate absenteeism² for both mean and no mean substitution regressions. However, using the standard R^2 s and correcting for degrees of freedom, the third F-test indicates that the unconstrained polynomials are superior in terms of describing functional form. Also, the reduced sample regression produces estimates almost identical to the regression with mean substitution, so that the substitution again seems reasonable. These regression outcomes will therefore be included in subsequent analyses.

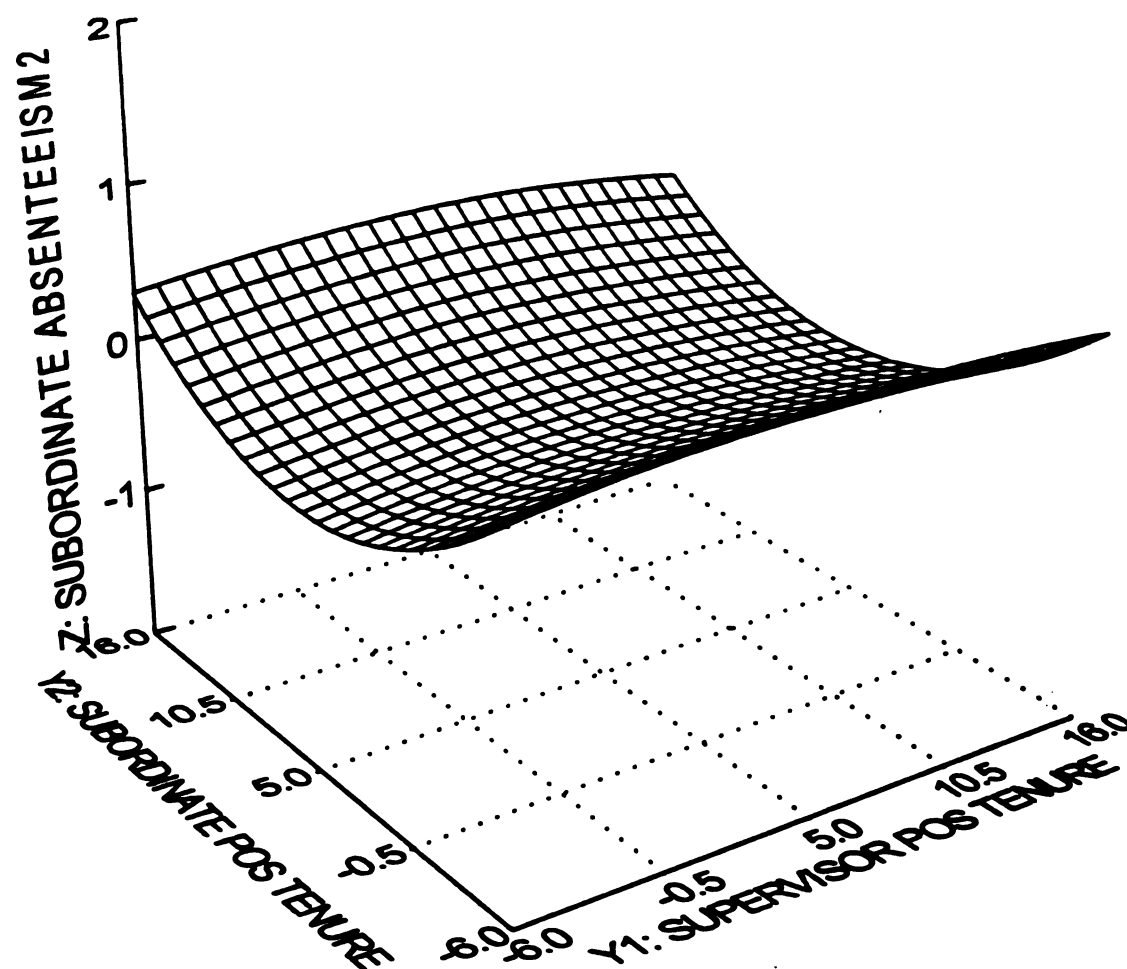
In both models 2 and 3, the linear subordinate term (Y_2) and their associated squared terms (Y_2^2) have significant coefficients, suggesting a convex, parabolic response surface. Indeed, interpreting these relationships visually, it appears that subordinates report the least problems with child-care and absenteeism at mean tenure levels, regardless of their supervisors' years of tenure (see Figures 27, 28 and 29). According to the graphs, as subordinates' position tenure increases or decreases beyond the mean, problems with absenteeism exacerbate and remain at the same level across each gradation of supervisory tenure. In simpler terms, varying supervisor position tenure has virtually no impact on subordinates' reported problems with child-care responsibilities and work attendance without considering changes in subordinate tenure. Clearly, dyadic position tenure similarity has essentially the same relationship with subordinates' absenteeism as does dyadic dissimilarity so that **Hypothesis 16b** is not supported:

Dyadic position tenure similarity does not generate more favorable views of the subordinates' child-care generated absenteeism compared to dyads in which the tenure of the parties diverges.



**Figure 27. MAIN EFFECTS: SUBORDINATE ABSENTEEISM2
REGRESSED ON DYADIC POSITION TENURE**

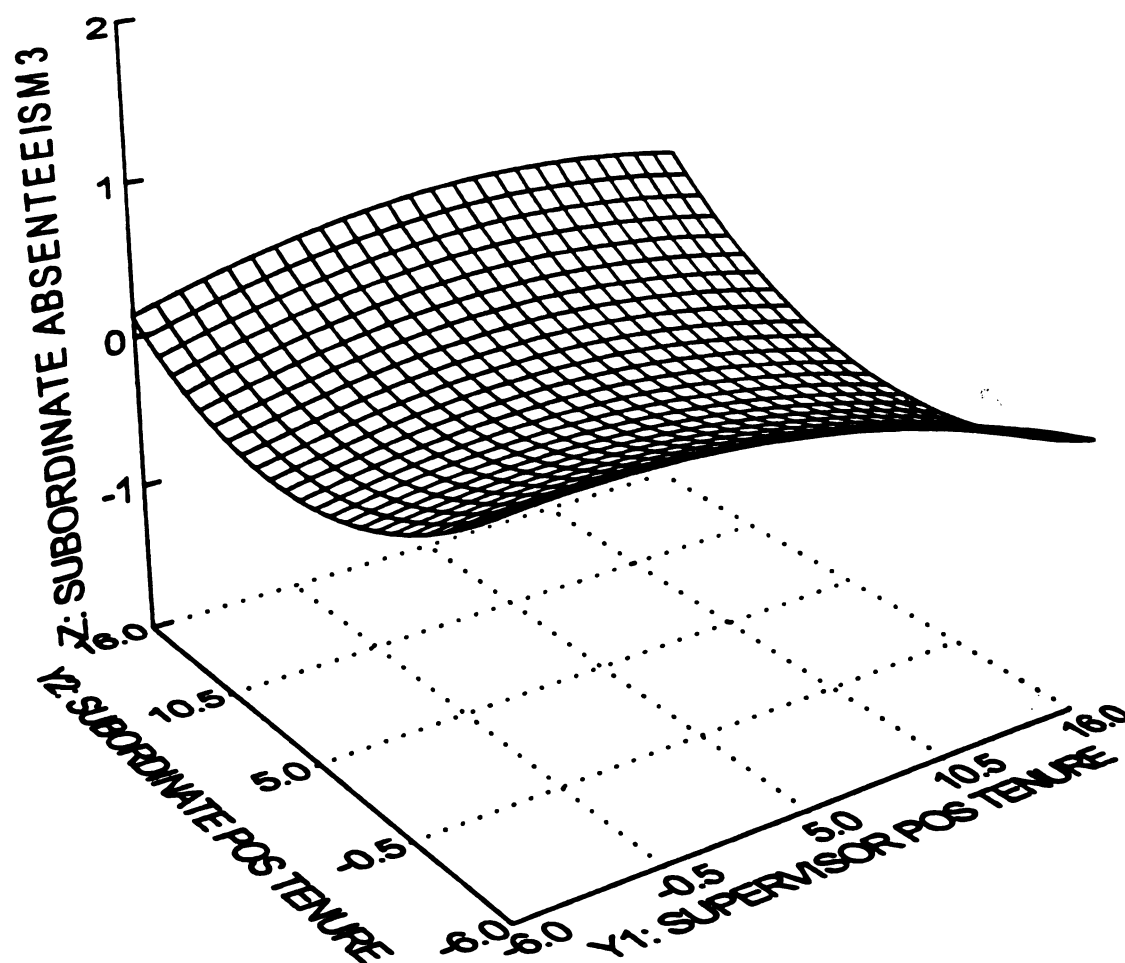
$$Z = -.083 + .016X_1 - .062X_2 - .001X_1^2 + .002X_1X_2 + .006X_2^2$$



**Figure 28. MAIN EFFECTS: SUBORDINATE ABSENTEEISM2
REGRESSED ON DYADIC POSITION TENURE***

$$Z = -.089 + .014X_1 - .064X_2 - .001X_1^2 + .000X_1X_2 + .006X_2^2$$

***Regression Model Analyzed With No Mean Substitution**



**Figure 29. MAIN EFFECTS: SUBORDINATE ABSENTEEISM3
REGRESSED ON DYADIC POSITION TENURE**

$$Z = -.053 + .004X_1 - .050X_2 - .002X_1^2 + .002X_1X_2 + .005X_2^2$$

C. Gender Contrasts and Outcome Variables

This section assesses the results for the 8 gender contrasts inserted into the regression analyses as independent predictors. Table 19 presents the significant results by dependent measure and contrast. Note that additional contrasts were included in the analysis beyond those required to evaluate the hypotheses. This was necessary to more fully illuminate the extant significant relationships of gender similarity and outcomes in a small sample. Again, due to the generally small sample sizes involved in gender contrast analysis, most findings must be viewed with particular vigilance.

Gender Contrasts with Subordinate Performance

As Table 19 displays, only three gender contrasts are successful predictors of subordinate performance. First, comparing same-sex female dyads to dyads with male supervisors and female subordinates (CONTSEX), it appears that in the homogeneous dyads female supervisors assign lower performance ratings to female subordinates than do male supervisors. Moreover, when same-sex female dyads are compared to all other gender-mix dyads (CONTSEX5), female supervisors' and averaged performance³ ratings are lower for female subordinates relative to subordinate ratings in other dyads. Clearly, the

Table 19. MAIN EFFECTS: DEPENDENT VARIABLES REGRESSED ON GENDER CONTRASTS IN SUPERVISOR-SUBORDINATE DYADS

DEPENDENT VARIABLE	CONTRAST: SUPERVISOR/SUBORDINATE GENDER CONTRAST						N
	(Dyad1 vs Dyad2)						
		B	F	R ²	R ^{2*}		
Subordinate Performance1	F/F vs M/F	-.241 ^a	3.482	.025 ^a	.018	139: 36/103	
	F/F vs All Others	-.269 ^b	4.455	.029 ^b	.023	149: 36/113	
Subordinate Performance3	F/F vs All Others	-.140 ^a	2.899	.020 ^a	.013	144: 35/109	
Subordinate Attitudes1	F/F vs F/M	-.861 ^c	8.839	.181 ^c	.161	42: 36/6	
	F/F vs M/M	-.707 ^a	3.752	.090 ^a	.066	40: 36/4	
	F/M vs All Others	.709 ^b	5.815	.038 ^b	.032	149: 6/143	
Subordinate Attitudes2	F/F vs F/M	-.887 ^c	7.989	.174 ^c	.152	40: 36/4	
	F/M vs All Others	.747 ^b	5.731	.038 ^b	.032	146: 6/140	
Subordinate Attitudes3	F/F vs F/M	-.869 ^d	15.587	.291 ^d	.272	40: 36/4	
	F/M vs All Others	.727 ^c	9.692	.063 ^c	.057	146: 6/140	
Subordinate Absenteeism2	M/F vs M/M	.680 ^a	2.881	.027 ^a	.018	106: 102/4	
	M/M vs All Others	-.669 ^a	2.807	.019 ^a	.012	148: 4/144	
	M/F vs All Others	.253 ^a	3.290	.022 ^a	.015	148: 102/46	
Subordinate Absenteeism3	M/F vs M/M	.674 ^b	4.233	.039 ^b	.030	106: 102/4	
	F/F vs M/M	.637 ^a	3.713	.089 ^a	.065	40: 36/4	
	M/M vs All Others	-.659 ^b	4.069	.027 ^b	.021	148: 4/144	
	M/F vs All Others	.208 ^a	3.303	.022 ^a	.015	148: 102/46	

^a = .01 < p < .05; ^b = .05 < p < .01; ^c = .01 < p < .001; ^d = p < .001.
Performance1/Attitudes1/Absenteeism1: Supervisors View of Employee's Performance/Attitudes/Absenteeism; Performance2/Attitudes2/Absenteeism2:
Employee's View; Performance3/Attitudes3/Absenteeism3: Unweighted Mean of Performance1 & 2/Attitudes1 & 2/Absenteeism1 & 2.
R²: R² Adjusted Formula.
Column (2) Contrast, N: First Contrast Coded 1; Second Contrast Coded 0.

stronger communication, experiential, and empathy bonds proposed to enhance female subordinate performance in same-sex dyads do not influence performance ratings in this sample, or are suppressed by some moderating process. The result is the finding of statistical outcomes reversing the proposition in **Hypothesis 18**:

Dyads in which both parties are female are associated with lower subordinate performance ratings relative to dyads with male supervisors and female subordinates.

Gender Contrasts with Subordinate Attitudes toward Managing Work and Child-Care

A number of dyadic gender contrasts were found to be significant predictors of subordinates' attitudes toward managing work and child-care responsibilities. In F/M dyads, subordinate attitudes are perceived as better than those in other dyad combinations, although this probably reflects the limited number of F/M dyads (6) and the fact that men generally report enhanced child-care management attitudes because their spouses perform most of these duties. Nevertheless, in evaluating these regressions, no statistical relationship was found for the salient F/F vs. M/F contrast. In other words, same-sex dyads are not significantly different in perceptions of subordinates' attitudes across three measures than are male-female dyads. Results do indicate that for all three

dependent measures, female-female dyads report lower ratings of subordinates' attitudes in contrast to other dyadic combinations. For example, F/F vs. F/M dyads show this inverse relation for subordinate attitudes^{1, 2 and 3}. Hence, it is reasonable to conclude that in same-sex female dyads, supervisors and subordinates perceive subordinates' attitudes toward managing work and child-care as more problematic than in other dyads. The proposition that dyadic gender similarity will improve outcomes for females does not hold for subordinate attitudes. In essence, **Hypothesis 19** is not supported:

Dyads in which both parties are female are not associated with more favorable subordinate attitudes toward managing work and child-care conflicts relative to dyads with male supervisors and female subordinates.

Gender Contrasts with Subordinates' Child-Care Generated Absenteeism

The contrast results in predicting subordinate absenteeism are not central to this analysis. Most importantly, same-sex female dyads do not report more favorable views of child-care generated absenteeism than do other dyads. As well, the finding that F/F dyads report more difficulties with child-care related absenteeism relative to M/M dyads further contradicts the hypothesized positive influence of female supervisors on

the child-care problems of their female subordinate. However, the **miniscule** sample size— $n = 40$ —with only 4 competing male-male dyads **makes** these results less than persuasive. Again, **Hypothesis 20** is not **validated**:

Dyads in which both parties are female are not associated with more favorable evaluations of subordinates' child-care generated absenteeism relative to dyads with male supervisors and female subordinates.

D. Conclusion

This section has presented the main effects regression results in **comparing** the predictive efficacy of constrained and unconstrained **models**, and evaluating the utility of gender contrasts as dyadic similarity **regressors**. The general finding has been that polynomial sets—for both **perceptual** congruence and actual similarity variables—are superior **predictors** of variance in the dependent measures. From these results, it **can be** further asserted that the 3-dimensional response surfaces implied by the significant polynomial sets more precisely describe the correct **functional** form underlying the relationship between perceptual **congruence** and actual similarity predictors, and perceptual DVs, than do **the** 2-dimensional linear graphs generated by difference scores. However, **the** graph response surfaces have only partially supported the proposed

hypotheses that dyadic perceptual congruence and actual similarity lead **unequivocally** to more favorable outcomes for employees. Rather, it **seems** that only at high levels of perceptual congruence and actual **similarity** are outcomes consistently improved. Supervisor and **subordinate** fit at moderate and low levels of the independent variables **does not** always generate enhanced subordinate outcomes, and, in fact, **can be** associated with workplace/family integration difficulties for **subordinates**.

Analogously, with respect to gender contrasts, it appears that **female** subordinates in same-sex dyads do not cultivate more favorable **performance** ratings, attitudes, and attendance relative to other types of **dyads**. The strong relationships anticipated between female supervisors and **subordinates** are not evident in the main effects portion of the model. Hence, the experimental hypotheses proposing that dyadic gender **similarity** for female subordinates brings tangible relief from child-care and **work** conflicts are not supported; in fact, a converse relationship **between** gender similarity and outcomes seems to be verified.

In sum, the main effects in the mediation model have been **determined**. The next section will analyze the multivariate relationships **between** actual similarity polynomials and perceptual congruence

variables to determine if a predictive, antecedent relation exists. From **these** results will be distilled significant relationships that will be included **in the** mediation models to be tested.

IV. Multivariate Regression Analysis: Perceptual Variables (Mediators) Regressed on Actual Similarity Polynomials and Gender Contrasts

A. Actual Similarity Polynomials as Multivariate Regressors

To commence this section, a brief review of the discussion of the **efficacy** of multivariate regression in this analysis is warranted. In effect, **multivariate** regression is recommended because it can be more **parsimonious** than complex simultaneous equation estimation in **determining** the relation between the actual similarity polynomial **regressors** and the dependent perceptual congruence constructs pursuant to **step 2** of the mediation analysis (see Chapter 4). Recall that step 2 **proposes** that Wilks' Λ be estimated for both the difference score **predictors** and their associated polynomial sets, i.e. equations (20) and (21). This was to be followed by the computation of an additional Wilks' Λ **between** significant difference scores and polynomial sets to determine **if** the unconstrained polynomial regressor sets constitute the more **appropriate** functional fit of the relationships with the perceptual

congruence constructs. However, the estimation of equation (20) and the **second** Wilks' Λ will not be required. As Tables 5-18 show, most of the **difference** scores are not significantly better predictors of the outcome **variables** than the polynomial sets. Furthermore, the few difference scores **that are** good predictors are either rejected by one of the three F-tests or **are associated** with polynomials that do significantly explain variance in **the dependent** measures. Hence, path c of the mediation models can be **best analyzed** with the polynomial regressors. Whether difference scores **are significant** multivariate regressors of the perceptual congruence **constructs**, therefore, becomes inapposite; actual similarity polynomial **sets are** the preferable predictors of paths c and d as required to assess **mediation**. Consequently, only equation (21) will be estimated and **presented**.

Table 20 presents the statistical results for the actual similarity (polynomial set) multivariate regression analysis. The significant **outcomes**, as shown, are limited to just 6 models. The first three analyses **indicate** that the respective polynomial regressors for education, **organizational** tenure and position tenure (Y_1 , Y_2 , Y_1^2 , Y_1Y_2 , Y_2^2), jointly **and** significantly predict the supervisor supportiveness variables as **measured** across both supervisor and subordinate measures (MSSUPP,

**Table 20. MULTIVARIATE REGRESSION: PERCEPTUAL VARIABLES (MEDIATORS) REGRESSED ON ACTUAL SIMILARITY
(DEMOGRAPHIC) POLYNOMIAL VARIABLES**

Multivariate Statistics						Univariate Statistics								
Perceptual DVs	Actual Similarity	Wilks Λ	F	Hypothesis/ Error DF	N	Y_1	Y_2	Y_1^2	Y_1Y_2	Y_2^2	F	R ²	R ^{2*}	
Support1	Education	.895	1.972 ^b	10/346	179	.023	.057 ^b	.042	-.123 ^b	.045 ^b	3.082	.082 ^b	.055 ^b	
Support2						.027	.056	.127	-.122	-.078	.896	.025	.000	
Support1	Organizational	.886	1.697 ^a	10/272	143	.002	-.023 ^c	.000	-.001	.004 ^c	3.168	.104 ^c	.071 ^c	
Support2	Tenure*					.001	-.007	-.002	-.000	.001	.286	.010	.000	
Support1	Position	.878	1.804 ^a	10/266	140	-.006	-.030 ^c	.000	.000	.002	3.131	.061 ^a	.026 ^a	
Support2	Tenure*					.040 ^a	-.051 ^a	-.004	-.000	.005	1.606	.047	.021	
Attitudes1	Education	.903	1.811 ^a	10/346	180	.255 ^c	.092 ^a	.093	-.008	.021	3.389	.089 ^c	.063 ^c	
Attitudes2						.117	-.001	.073	-.080	.038	.606	.017	.000	
Absenteeism1	Organizational	.876	2.360 ^c	10/346	180	-.023 ^b	-.023 ^a	-.001	.006 ^c	.001	3.565	.093 ^c	.067 ^c	
Absenteeism2	Tenure					-.004	-.020	-.002 ^a	.002	.000	1.669	.046	.018	
Absenteeism1	Position	.902	1.840 ^b	10/348	181	-.009	-.036 ^b	-.003	.001	.004	1.400	.038	.011	
Absenteeism2	Tenure					.017	-.063 ^d	-.002	.002	.006 ^a	2.734	.072 ^b	.046 ^b	

^a = .1 < p < .05; ^b = .05 < p < .01; ^c = .01 < p < .001; ^d = p < .001.

Support1/Support2: Supervisor's/Supordinate's View of Supervisor's Supportiveness of Subordinate; Attitudes1/Attitudes2: Supervisor's/Supordinate's View of Subordinate's Work/Family Attitudes.
R²: R² Adjusted Formula.

Column (2) Contrast, Column (6) N: First Contrast Coded 1; Second Contrast Coded 0.

* = Regression Model without Mean Substitution for Missing Values.

MESUPP)—although both sets of tenure variables are only marginally **significant**. Respectively, Wilks' Λ for supervisor and subordinate views **of supervisor support** regressed on education, and organizational and **position tenure** are .895 (at $p < .05$), .886 (at $.10 < p < .05$), and .878 (at $.10 < p < .05$). The education polynomials also are marginally predictive **of supervisor and subordinate views of subordinate's attitudes** (MSEFFT, **MEEFFT**), as Wilks' Λ (.903) is significant at $.10 < p < .05$. In predicting **supervisor and subordinate perceptions of subordinates' child-care related absenteeism**, Wilks' Λ for organizational and position tenure polynomials is **more** highly significant (.876, $.01 < p < .001$; .902, $.05 < p < .01$).

Notably, the univariate statistical results in Table 20 indicate that **the separately estimated equations are not both significant in any of the models**. That is, the R^2 index derived from the individual regression of **the perceptual DVs on the polynomial regressor sets** is not significant for **any pair** of associated univariate models. This outcome is significant **because**, as set forth in Chapter 4, it eliminates the utility of conducting a **simultaneous equation analysis to explore the relation of the coefficients predicting the dependent supervisor and subordinate perceptual congruence constructs**. Hence, Edwards' (1995) simultaneous equation

approach to evaluating the effects of the polynomial regressors on the **dependent** supervisor and subordinate measures will not be needed, as **sufficient** information is provided by the multivariate analysis.

Thus, all the significant relations required to test the mediation **hypothesis** have now been determined. It has been shown that polynomial **regressors** are generally more effective and functionally accurate **predictors** of outcomes than difference scores for both perceptual **congruence** and actual similarity variables. At this phase of the analysis, **it is now** possible to combine the significant main effects for perceptual **congruence** polynomials, significant main effects for the actual similarity **polynomials**, and significant multivariate results to form the conceptual **models** to be tested. Figure 30 presents these 9 models in graphical form. Each **model** will be evaluated to determine 1) if path d exists and c does not (**full** mediation), 2) both paths c and d exist (partial mediation), or 3) **whether** path d is superfluous (no mediation). Section V will explore **these** conceptual models in more detail.

B. Gender Contrasts as Multivariate Regressors

Table 21 presents the dummy coded gender contrasts and their **significant** multivariate regression relationships with sets of supervisor **and** subordinate perceptual congruence constructs, e.g. MSSUPP and

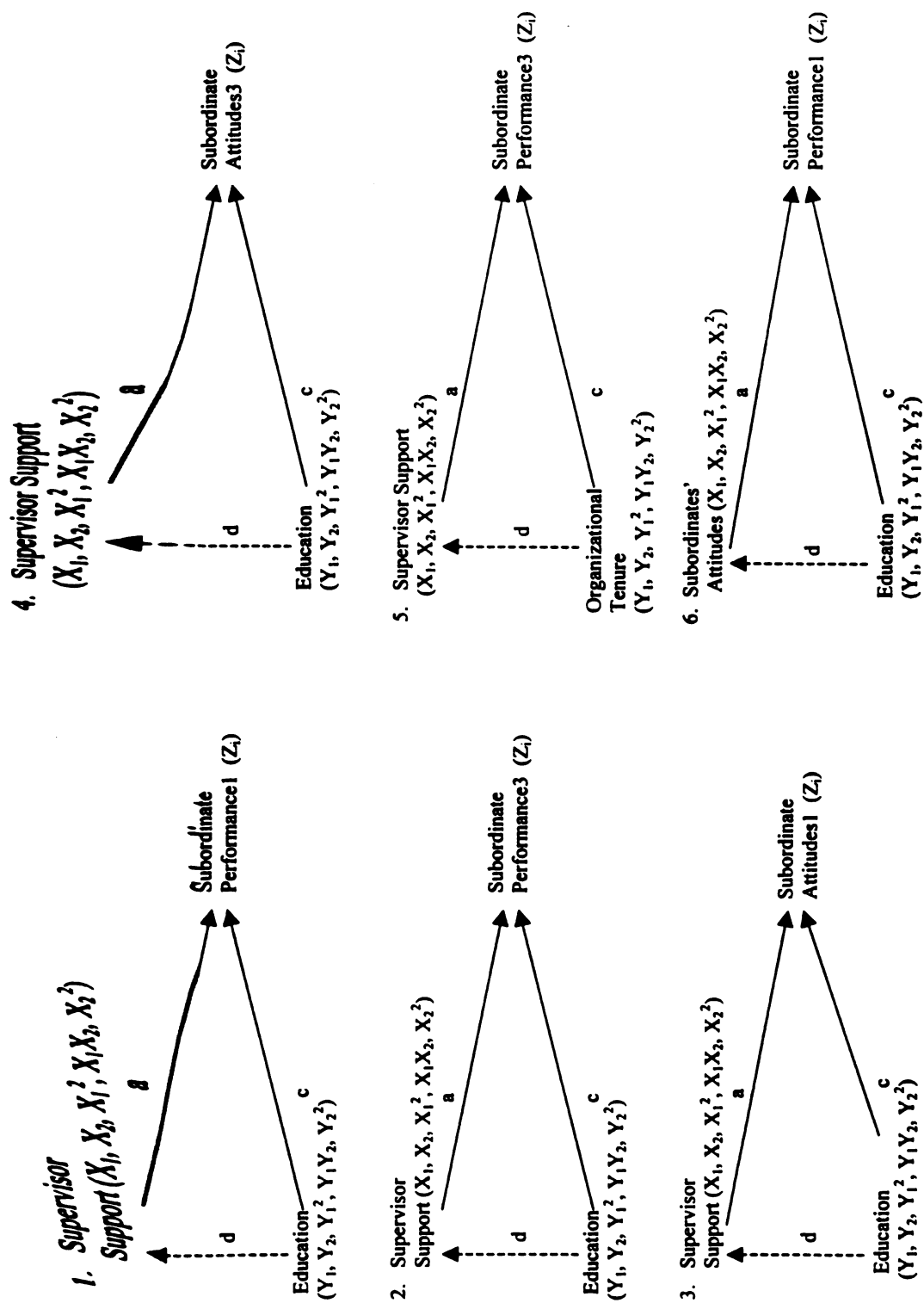


Figure 30. MODELS IN WHICH MEDIATION OF ACTUAL SIMILARITY POLYNOMIALS CAN BE EFFECTIVELY TESTED.

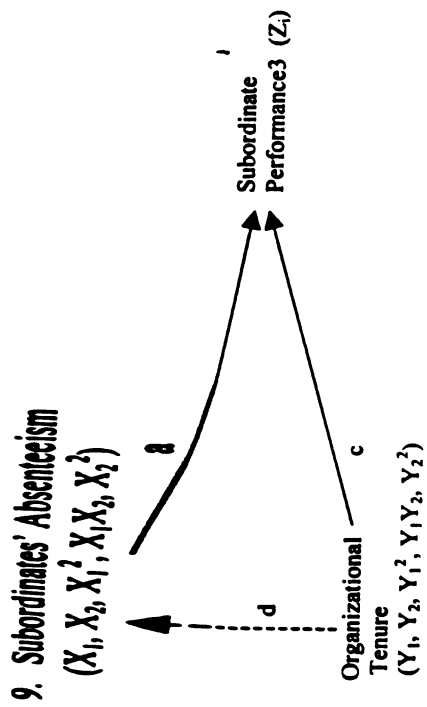
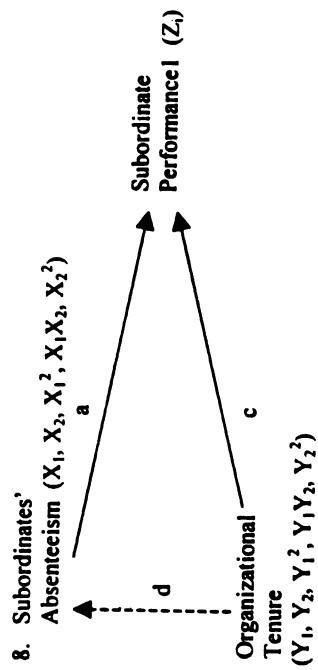
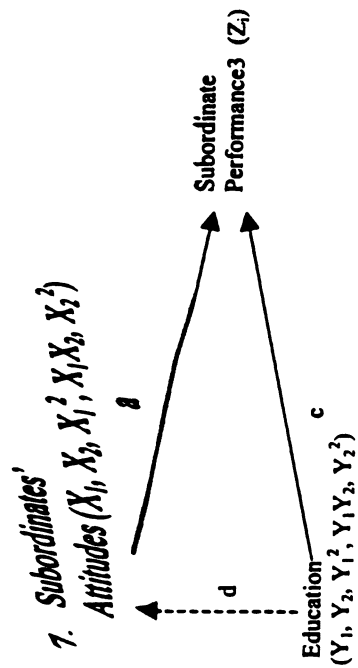


Figure 30 (cont'd)

c, d = Paths to be Tested for Full and Partial Mediation.

Table 21. MULTIVARIATE REGRESSION: PERCEPTUAL VARIABLES (MEDIATORS) REGRESSED ON GENDER CONTRASTS

Multivariate Statistics						Univariate Statistics				
Perceptual DVs	Contrast	Wilks Λ	F	Hypothesis/ Error DF	N	Perceptual Dvs	B	F	R ²	R ² *
Support1	F/F vs M/F	.938	4.401 ^a	2/133	136: 36/100	Support1	.196 ^c	7.449	.053 ^c	.046 ^c
Support2						Support2	-.221	1.519	.011	.004
Support1	M/F vs M/M	.942	3.085 ^b	2/101	104: 100/4	Support1	-.168	.952	.009	.000
Support2						Support2	1.110 ^b	5.757	.053 ^b	.044 ^b
Support1	F/F vs F/M	.876	2.750 ^a	2/39	42: 36/6	Support1	-.347 ^a	2.968	.069 ^a	.046 ^a
Support2						Support2	-.799 ^a	3.588	.082 ^a	.059 ^a
Support1	M/M vs All	.964	2.712 ^a	2/143	146: 4/142	Support1	.096	.229	.002	.000
Support2	Others					Support2	-1.078 ^b	5.247	.035 ^b	.028 ^b
Support1	F/F vs All	.959	2.986 ^a	2/143	146: 36/110	Support1	.160 ^b	3.810	.031 ^b	.024 ^b
Support2	Others					Support2	-.212	1.644	.010	.003
Support1	M/F vs All	.911	6.950 ^c	2/143	146: 102/44	Support1	-.239 ^c	12.532	.080 ^c	.074 ^c
Support2	Others					Support2	.194	1.342	.009	.002
Support1	F/M vs All	.918	6.363 ^c	2/143	146: 6/140	Support1	.488 ^c	9.347	.061 ^c	.054 ^c
Support2	Others					Support2	.666 ^a	2.914	.020 ^a	.013 ^a
Attitudes1	F/F vs F/M	.709	7.594 ^c	2/37	40: 34/6	Attitudes1	-.724 ^c	8.496	.183 ^c	.161 ^c
Attitudes2						Attitudes2	-.640 ^c	7.989	.174 ^c	.152 ^c
Attitudes1	F/F vs M/M	.841	3.299 ^b	2/35	38: 34/4	Attitudes1	-.582 ^a	3.552	.090 ^a	.065 ^a
Attitudes2						Attitudes2	.430	1.747	.046	.020
Attitudes1	F/M vs All	.937	4.814 ^c	2/143	146: 6/140	Attitudes1	.699 ^b	5.642	.038 ^b	.031 ^b
Attitudes2	Others					Attitudes2	.757 ^b	5.731	.038 ^b	.032 ^b

^a = $1 < p < .05$; ^b = $.05 < p < .01$; ^c = $.01 < p < .001$; ^d = $p < .001$.

Support1/Support2: Supervisor's/Subordinate's View of Supervisor's Supportiveness of Subordinate; Attitudes1/Attitudes2: Supervisor's/Subordinate's View of Subordinate's Work/Family Attitudes.

R^{2c}: R² Adjusted Formula.

Column (2) Contrast, Column (6) N: First Contrast Coded 1; Second Contrast Coded 0.

MESUPP. A number of gender contrasts—a total of 7—significantly predict supervisor and subordinate views of supervisor supportiveness for subordinates' child-care influenced workplace problems as joint dependent measures. As well, supervisor and subordinate attitudes toward subordinates' difficulties toward work and child-care integration are jointly predicted by three distinct gender contrasts. In general, the specific interpretations of these regression models are not particularly illuminating given the extremely small dyadic sample sizes in most of the contrasts. For instance, although female-female dyads experience less perceived supervisor support for both perceptual constructs than female-male dyads in model 3, only 6 of the latter dyads exist. Indeed, this miniscule subsample seriously diminishes the generalizability of the results, and is afflicted with substantial sampling error so that results should be assessed with great caution.

Nevertheless, models 1 and 5 suggest that female-female dyads are associated with more enhanced supervisor perceptions of supportiveness than are male-female dyads or other gender combinations, as both supervisor univariate coefficients are positive and significant. That is, female supervisors in same-sex dyads view themselves as more supportive of subordinates' work/child-care problems than do supervisors

in other dyadic structures. Alternatively, model 3 indicates that both supervisors and subordinates in female-female dyads perceive supervisors as less supportive relative to dyads with female supervisors and male subordinates, although the minimal 6 dyad comparison impedes any solid interpretations—Bs are negative and significant for both univariate regressions. Model 2 shows that male supervisors of the 4 homogeneous male dyads see themselves as more supportive than male supervisors in male-female dyads. Examining the attitudinal constructs, model 8 indicates that female-female dyads generate lower supervisor and subordinate perceptions of subordinate attitudes toward managing work/family integration than do female-male dyads, the latter consisting of only 6 dyadic pairs. Model 9 shows that homogeneous female dyads produce less favorable supervisor perceptions of subordinates' attitudes than do male-male dyads, again with only 4 male-male pairs.

Collectively, these findings are somewhat ambiguous with respect to the influence of dyadic gender similarity on supervisor and subordinate perceptions of subordinate child-care and workplace problems. Contrast analyses 1, 2, 5, and 6 provide some evidence that same-sex dyads are predictive of higher supervisor self-ratings and subordinate ratings of supervisor supportiveness relative to mixed gender dyads, while analyses

3, 4, and 7 suggest the converse. Models 8 and 10 suggest that mixed dyads—at least for female-male pairs—generate higher ratings of supervisor and subordinate perceptions of subordinate work/child-care attitudes, while model 9 shows that same-sex male dyads engender more favorable supervisor perceptions of subordinates' attitudes than do same-sex female dyads. Although the latter finding may be a statistical artifact caused by sampling error, it might also indicate that female supervisors have more insight into female subordinates' work/child-care attitudes than male supervisors possess, particularly for male subordinates. Overall, consistency with the theme that actual similarity—particularly for female same-sex dyads—promotes more accurate perceptions of work and child-care difficulties is elusive. Contrast 5 establishes, at best, that in a reasonably large subsample of 146 cases, female supervisors' believe that they are effectively supportive of subordinates' child-care problems compared to all other dyadic gender compositions.

In conclusion, all the significant relations required to test the mediation hypothesis for gender similarity have now been determined. It is now possible to combine the significant main effects for perceptual congruence polynomials, significant main effects for the actual similarity gender contrasts, and the significant multivariate results to form the

conceptual models to be tested. Note, however, that the limited sample sizes for these contrasts will damage the mediation analyses, as the number of cases for the perceptual congruence constructs and the dependent measures will plummet. This drop in n will alter the main effects relationships within the mediation equation (16; 20) and probably diminish previous findings. In other words, mediation for the larger sample cannot be tested. Figure 31 presents these 10 models in graphical form. Each model will be evaluated to determine 1) if path d exists and c does not (full mediation), 2) both paths c and d exist (partial mediation), or 3) whether path d is superfluous (no mediation). Section V, again, will explore these conceptual models in more detail.

V. Testing Mediation

The culmination of significant results for main effects equations (18) and (19) (or 21 and 22), and for multivariate regression equations (15) (or 16 and 17) generate the 19 mediation models to be tested in Table 21 (and subsequently in Table 23, page 277). This set of models will be analyzed to determine if 1) full mediation occurs, 2) partial mediation occurs, or 3) no mediation is present.

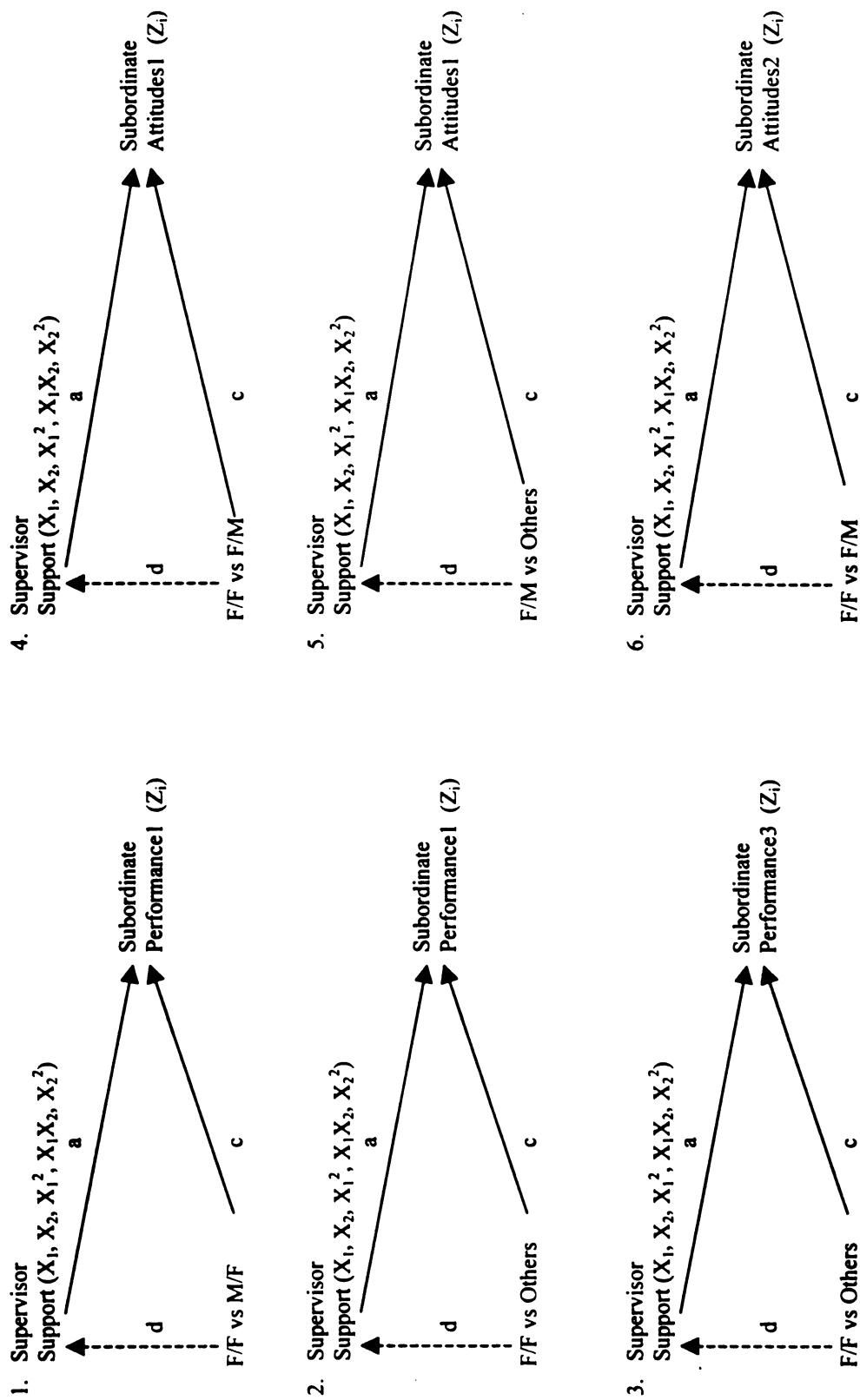


Figure 31. MODELS IN WHICH MEDIATION OF GENDER SIMILARITY CONTRASTS CAN BE EFFECTIVELY TESTED.¹

¹ All contrasts are coded 1 for the first dyadic combination and 0 for the second dyadic combination.
d = Mediation path to be tested.

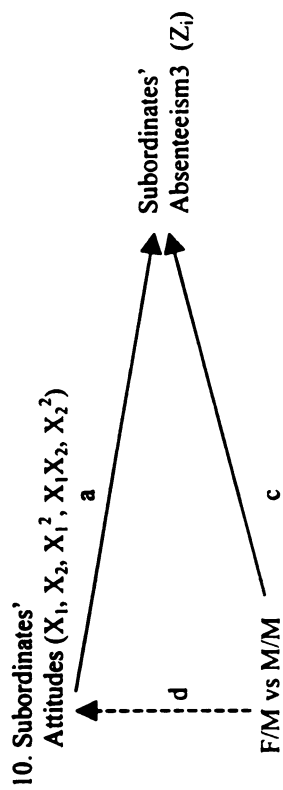
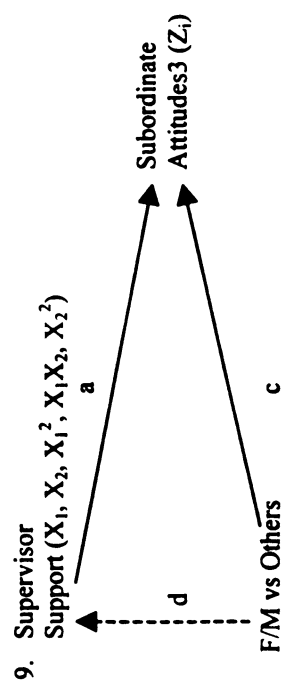
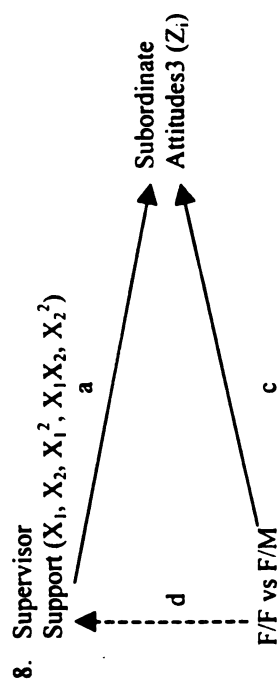
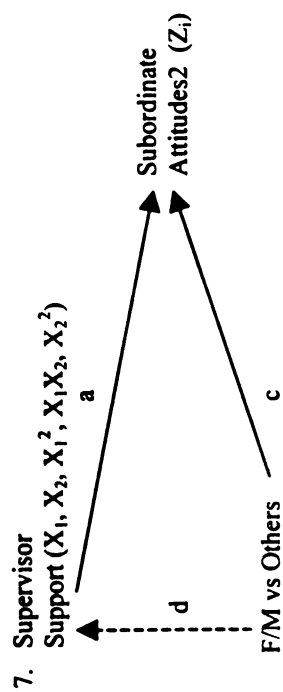


Figure 31 (cont'd)

A. Polynomial Perceptual Congruence Mediators, and Polynomial Actual Similarity and Gender Contrast Independent Variables

Views of Supervisor Supportiveness as a Mediator of Education, Organizational and Position Tenure, and Gender: with DVs Subordinate Performance, Attitudes and Absenteeism

The first model to be tested in Figure 30 presents both supervisor supportiveness and education polynomial sets as main effects predictors of subordinate performance¹ pursuant to previous significant findings. These represent paths *a* and *c*, respectively. The hypothesized emergent path is *d* in the diagram, where path *c* will diminish as a significant predictor for full mediation. Table 22 presents the blocked regression results from equations (20) and (26), assessing the significance in the change in R^2 after the second block is added. As displayed, the .043 point change in R^2 is not significant. This indicates that the education polynomials do not substantially contribute to the explanation of variance in subordinate performance¹ beyond that of the supervisor support polynomial set. As well, none of the education variables are individually significant. In effect, the education variables in this model influence subordinate performance¹ only through supervisor support. That is, any impact of educational actual similarity on this dependent measure is fully

Table 22. TESTING FULL MEDIATION: REGRESSING DEPENDENT MEASURES ON PERCEPTUAL CONGRUENCE, ACTUAL SIMILARITY IN POLYNOMIAL FORM AND OBSERVING THE CHANGE IN R²

Dependent Variable	Mediator Variable	Regression Block 1										Regression Block 2										Full Model		
												Independent (Mediated) Variable												
		X ₁	X ₂	X ₁ ²	X ₁ X ₂	X ₂ ²	F	R ²	R ²	Variable	Y ₁	Y ₂	Y ₁ ²	Y ₁ Y ₂	Y ₂ ²	F	ΔR ²	R ²	R ²	R ²				
Performance1	Supervisor Support	.488 ^d	.035	-.098	.071	-.021	3.790	.073	.099 ^c	Education	-.053	.072	-.095	-.073	.010	2.772	.043	.091	.142 ^c	.179				
Performance3	Supervisor Support	.159 ^a	.050	.113	.056	.017	1.985	.027	.055 ^a	Education	-.004	.012	-.080 ^a	-.070	.039	2.334	.068 ^b	.070	.123 ^b	.179				
Attitudes1	Supervisor Support	.572 ^c	.008	-.104	.059	-.030	3.591	.068	.094 ^c	Education	.245 ^c	.076	.061	.095	-.002	3.276	.069 ^b	.113	.163 ^b	.179				
Attitudes3	Supervisor Support	.276 ^b	.082 ^a	.241	.078	-.005	3.623	.069	.095 ^c	Education	.195 ^c	.020	.079	-.063	.023	2.931	.054 ^a	.098	.149 ^c	.179				
Performance3	Supervisor Support	.159 ^a	.050	.113	.056	.017	1.985	.027	.055 ^a	Organizational Tenure	-.005	.013 ^a	-.001 ^b	-.001 ^b	.000	2.542	.078 ^b	.081	.133 ^c	.177				
Performance3	Supervisor Support	.159 ^a	.050	.113	.056	.017	1.590	.020	.055	Organizational Tenure ^c	-.011 ^b	.006	-.001	-.001	.001	1.787	.064 ^a	.053	.119 ^a	.143				
Performance1	Subordinate Attitudes	.247 ^d	.163 ^b	.049	-.048	.166 ^c	4.837	.097	.122 ^d	Education	-.094	.061	-.133 ^b	-.096	.019	2.900	.065 ^b	.139	.187 ^d	.180				
Performance3	Subordinate Attitudes	.152 ^c	.132 ^c	.074 ^b	-.055	.086 ^b	4.558	.092	.118 ^d	Education	-.012	-.008	-.094 ^b	-.069	.034	3.965	.075 ^b	.144	.193 ^d	.177				
Performance1	Subordinate Absenteeism	-.190 ^c	.063	-.036	-.022	.003	2.781	.047	.073 ^b	Organizational Tenure	-.012	.005	-.003 ^c	-.001	.002	2.765	.065 ^b	.087	.138 ^b	.180				
Performance3	Subordinate Absenteeism	-.124 ^c	-.007	-.005	-.019	-.008	3.104	.056	.083 ^b	Organizational Tenure	-.008 ^a	.014 ^a	-.001	-.001	.001	2.853	.064 ^b	.095	.147 ^c	.177				

X₁ = Supervisor's Response; X₂ = Subordinate's Response.

Y₁ = Supervisor's Response; Y₂ = Subordinate's Response.

^a = .1 < p < .05; ^b = .05 < p < .01; ^c = .01 < p < .001; ^d = p < .001.

Performance1: Supervisors View of Employee's Performance; Performance2: Employee's View; Performance3: Unweighted Mean of Performance1 & 2.

Attitudes1: Supervisors View of Subordinate's Attitudes; Attitudes2: Subordinate's Self-View; Attitudes3: Unweighted Mean of Attitudes1 & 2.

Absenteeism1: Supervisor's View of Subordinate's Absenteeism; Absenteeism2: Subordinate's Self-View; Absenteeism3: Unweighted Mean of Performance1 & 2.

R²: R² Adjusted Formula.

^a = Regression Model Calculated without Mean Substitution for Supervisor and Subordinate Variables

mediated by supervisor support perceptual congruence such that path c is disappears.

The second model depicted in Figure 30 again presents supervisor support and education polynomial sets as significant predictors, with the dependent measure being the averaged supervisor-subordinate views of subordinate performance. The statistical results show that the incremental change in R^2 subsequent to the entry of block 2 in the regression is significant at $.05 < p < .01$. Clearly, this shows that all the effect of education on subordinate performance³ is not transmitted through the supervisor support variables. In fact, Table 23 demonstrates that the education polynomials are not partially mediated by supervisor support polynomials: the .068 increment to R^2 falls within the 95% confidence limits bounding the .087 main effects R^2 computed for education variables as predictors of performance³. That is, it can be asserted that this increment approaches the main effects level of variance explained systematically in 95% of repeated estimates. Importantly, it means that educational actual similarity is not mediated by supervisor support perceptual congruence, and path d does not exist.

Finally, no mediation relationship could be established between supervisor supportiveness and education polynomial sets as predictors of

Table 23. TESTING PARTIAL MEDIATION: COMPARING THE INCREMENT IN R² FOR THE FULL MEDIATION MODEL TO THE CONFIDENCE INTERVAL SURROUNDING THE R² IN THE MAIN EFFECTS ACTUAL SIMILARITY MODEL

Dependent Variable	Regression Block 1		Regression Block 2			
	Mediator Variable	R ²	Independent (Mediated) Variable	Incremental ΔR^2	Difference Between R ² s: (R ² _{Main Effects} - R ² _{Incremental})	St Error R ² = $\frac{\sigma^{R^2}}{(4R^2(1 - R^2)/n)^{1/2}}$
Performance3	Supervisor Support	.055 ^a	Education	.068	(.087 - .068) = .019	$\sigma^{R^2} = .040$.009 ≤ R ² ≤ .165
Performance3	Supervisor Support	.055 ^a	Organizational Tenure	.078	(.074 - .078) = 0	$\sigma^{R^2} = .038$.000 ≤ R ² ≤ .148
Performance3	Supervisor Support	.055	Organizational Tenure ^c	.064	(.065 - .064) = .001	$\sigma^{R^2} = .040$ -.013 ≤ R ² ≤ .143
Attitudes1	Supervisor Support	.094 ^c	Education	.069	(.082 - .069) = .013	$\sigma^{R^2} = .039$.006 ≤ R ² ≤ .158
Attitudes3	Supervisor Support	.095 ^c	Education	.054	(.069 - .054) = .015	$\sigma^{R^2} = .037$ -.004 ≤ R ² ≤ .142
Performance1	Subordinate Attitudes	.122 ^d	Education	.065	(.069 - .065) = .004	$\sigma^{R^2} = .036$ -.002 ≤ R ² ≤ .140
Performance3	Subordinate Attitudes	.118 ^d	Education	.075	(.087 - .075) = .012	$\sigma^{R^2} = .040$.009 ≤ R ² ≤ .165
Performance1	Subordinate Absenteeism	.073 ^b	Organizational Tenure	.065	(.074 - .065) = .009	$\sigma^{R^2} = .038$.000 ≤ R ² ≤ .148
Performance3	Subordinate Absenteeism	.083 ^b	Organizational Tenure	.064	(.074 - .064) = .010	$\sigma^{R^2} = .038$.000 ≤ R ² ≤ .148

^a = .1 < p < .05; ^b = .05 < p < .01; ^c = .01 < p < .001; ^d = p < .001.

Performance1: Supervisors View of Employee's Performance; Performance2: Employee's View; Performance3: Unweighted Mean of Performance1 & 2.

Attitudes1: Supervisors View of Subordinate's Attitudes; Attitudes2: Subordinate's Self-View; Attitudes3: Unweighted Mean of Attitudes1 & 2.

Absenteeism1: Supervisor's View of Subordinate's Absenteeism; Absenteeism2: Subordinate's Self-View; Absenteeism3: Unweighted Mean of Performance1 & 2.

subordinate performance². While these results *prima facie* do not seem to confirm the related hypothesis (22a), a caveat is introduced here. In essence, it can be confidently asserted that the dependent constructs for subordinate performance² and performance³ are less precise measures of subordinate performance than the supervisors' ratings of their subordinates' performance. This is because supervisors' ratings were determined both confidentially and informally. In other words, it seems reasonable to infer that performance¹ ratings are the best measures of performance; their confidentiality limits the leniency and central compression that typically afflicts performance appraisals, and the likely halo effects in subordinates' ratings of their own performance—typical of self-evaluations—are avoided. In short, the evidence and the preceding arguments suggest that **Hypothesis 22a** is supported:

Dyadic perceptual congruence regarding supervisor supportiveness fully mediates the relation between dyadic education similarity and subordinate performance.

The third model to be evaluated in Figure 30 posits the supervisor supportiveness polynomials as mediating the influence of education similarity on subordinate attitudes¹ toward managing work and child-care conflict. The regression results present a significant increment of .069

(.05 < p < .01) in R^2 subsequent to the entry of block 2. This indicates the absence of a fully moderated structure. Considering partial mediation, Table 23 fails to report such a finding; the incremental change in R^2 falls within the education polynomial set's main effects confidence interval which means that it can be asserted with 95% certainty that the increment is not systematically different from the main effects R^2 . In sum, the education polynomial set is neither fully nor partially mediated by supervisor supportiveness perceptual congruence, and therefore has a direct effect on attitudes¹.

Similarly, model 4 presents supervisor supportiveness variables as a set mediating the impact of educational actual similarity on subordinate attitudes³. After the second block is entered, a marginally significant increment of .054 ($p = .065$) to R^2 is revealed. Apparently, the perceptual congruence encompassed by the supportiveness polynomials does not fully mediate the influence of education on subordinate attitudes³. It also does not facilitate partial mediation, as .054 increment falls within the 95% confidence band of the main effects R^2 . Taken together, these outcomes do not verify the supposition in **Hypothesis 22b**:

Dyadic perceptual congruence regarding supervisor supportiveness does not fully or partially mediate the relation between dyadic

education similarity and subordinates' attitudes toward managing work and child-care responsibilities.

Finally, no evidence was found to verify mediation **Hypothesis**

22c. Hence:

Dyadic perceptual congruence regarding supervisor supportiveness does not fully or partially mediate the relation between dyadic education similarity and subordinates' child-care related absenteeism.

The next mediation relationship to be evaluated involves supervisor supportiveness mediating the link between tenure—organizational and position tenure, separately—and the dependent measures. Figure 30 includes only one testable—non-duplicated—model involving performance: the supportiveness variable intervening between organizational tenure and subordinate performance³ in diagram 5. The statistical results report a significant .078 increase in R^2 following the addition of the block 2 tenure variables, indicating that full mediation is absent. Similarly, partial mediation is absent as the increment falls within the R^2 confidence limits.³ Again, a central supposition is not validated, i.e.

³In Table 23, note that the main effects R^2 is slightly smaller than the increment to R^2 in the blocked regression. In mathematical theory this should be impossible because an incremental change can never be larger than the variance explained in the direct main effects, unless some

Hypothesis 23a. Nor was any evidence found that a mediated relationship existed between either tenure variable and the remaining outcome variables where supervisor supportiveness was the mediator. The following conclusions obtain for **Hypothesis 23(a,b,c)** and **Hypothesis 24(a,b,c)** :

Dyadic perceptual congruence regarding supervisor supportiveness does not mediate the relation between dyadic organizational (position) tenure and: (a) subordinates' performance ratings; (b) subordinates' attitudes toward managing work and child-care responsibilities; and (c) subordinates' child-care related absenteeism.

The final set of mediated supportiveness relationships to be assessed encompasses the influence of gender contrasts (gender similarity) on the dependent measures. Figure 31 displays the 8 diagrams conceptually linking perceptions of supervisor supportiveness, gender contrasts, and outcome variables. The first models tested are a regression of supportiveness, then contrast CONTSEX (F/F vs. M/F)/CONTSEX5 (same-sex female dyads against all others), on subordinate performance¹. The changes in R^2 subsequent to the insertion of the contrasts are

statistical anomaly has occurred, e.g. multicollinearity. In this case, this peculiar outcome is believed to be predicated on a mild change in the cases involved in both separate regressions. Hence, the difference is, in essence, zero.

significant in Table 24, invalidating extant full mediation. Partial mediation is not found, as well, in Table 25, given that the increment in R^2 for CONTSEX is problematic⁴ and that for CONTSEX5 is only .006 points less than the main effects R^2 . Analogous results are evident with subordinate performance³ as the dependent construct regressed on CONTSEX5. Clearly, perceptual congruence via supervisor supportiveness is not a mediating process between F/F vs. all other dyads and subordinate performance; an alternative latent link is apparently in operation. **Hypothesis 25a** is not validated:

Dyadic perceptual congruence regarding supervisor supportiveness does not mediate the relation between dyadic gender similarity for same-sex female dyads and subordinates' performance ratings.

Gender similarity's relationship with subordinates' attitudes toward managing work and child-care responsibilities is the next mediated path to be addressed. Diagrams 4-9 show the theorized relations while Tables 24 and 25 report the statistical analysis. The contrast CONTSEX2 (F/F vs.

⁴ A negative difference between main effects and incremental R^2 s is found. The explanation is a loss of cases from the main effects regression of performance¹ on supervisor supportiveness to the first block of the mediation regression. An Alternative explanation is a "suppression" effect, to be explained in the next chapter.

Table 24. TESTING FULL MEDIATION: REGRESSING DEPENDENT MEASURES ON PERCEPTUAL CONGRUENCE MEDIATORS IN POLYNOMIAL FORM, GENDER SIMILARITY IN CONTRAST FORM, AND OBSERVING THE CHANGE IN R²

Dependent Variable	Mediator Variable	Regression Block 1							Regression Block 2				Full Model			
		X ₁	X ₂	X ₁ ²	X ₁ X ₂	X ₂ ²	F	R ²	Independent (Mediated) Contrast	B	F	ΔR ²	R ²	R ²	N	
Performance1	Supervisor Support	.488 ^d	.035	-.098	.071	-.021	2.848	.064	.099 ^b	F/F vs M/F	-.347 ^c	3.775	.050 ^c	.110 ^c	.149 ^c	136: 36/100
	Supervisor Support	.488 ^d	.035	-.098	.071	-.021	3.132	.067	.098 ^b	All F/F vs Others	-.271 ^a	3.268	.023 ^a	.084	.121 ^c	149: 36/113
Performance3	Supervisor Support	.211 ^a	.046	.017	.015	.029	1.416	.014	.049	All F/F vs Others	-.172 ^b	1.912	.029 ^b	.037	.078 ^a	143: 35/108
	Supervisor Support	.641 ^a	-.010	-.008	-.043	-.035	1.044	.005	.127	F/F vs F/M	-.906 ^c	2.261	.152 ^c	.156	.279 ^b	42: 36/6
Attitudes1	Supervisor Support	.641 ^c	-.010	-.009	-.043	-.035	4.061	.096	.127 ^c	All F/M vs Others	.488	3.844	.015	.105	.142 ^c	146: 6/140
	Supervisor Support	.102	.174	.263	.072	.016	.449	.000	.062	F/F vs F/M	-.878 ^b	1.268	.125 ^b	.040	.187	40: 34/6
Attitudes2	Supervisor Support	.093	.188 ^b	.136	.016	.045	1.517	.018	.052	All F/M vs Others	.620 ^a	1.850	.023 ^a	.034	.075 ^a	144: 6/138
	Supervisor Support	.276	.082	.241	.078	-.005	.712	.000	.095	F/F vs F/M	-.849 ^c	2.466	.215 ^c	.184	.310 ^b	40: 34/6
Attitudes3	Supervisor Support	.363 ^b	.083	.064	-.001	.009	2.634	.054	.087 ^b	All F/M vs Others	.554 ^b	3.080	.032 ^b	.080	.119 ^b	144: 6/138
	Subordinate Attitudes	-.352 ^b	-.205	-.018	.066	-.038	2.465	.165	.278 ^a	F/F vs M/M	.787 ^a	2.878	.080 ^a	.233	.358 ^b	38: 34/4

X₁ = Supervisor's Response; X₂ = Subordinate's Response; B = Dummy Regression Contrast, First Dyad Coded 1, Second Dyad Coded 0 in Column (10) Contrast.
^a = .1 < p < .05; ^b = .05 < p < .01; ^c = .01 < p < .001; ^d = p < .001.

Performance1: Supervisors View of Employee's Performance; Performance3: Unweighted Mean of Performance1 & 2; Attitudes2: Subordinate's Self-View; Attitudes3: Unweighted Mean of Attitudes1 & 2; Absenteeism3: Unweighted Mean of Performance1 & 2.
R²: R² Adjusted Formula.

Table 25. TESTING PARTIAL MEDIATION: COMPARING THE INCREMENT IN R² FOR THE FULL MEDIATION MODEL TO THE CONFIDENCE INTERVAL SURROUNDING THE R² IN THE MAIN EFFECTS GENDER CONTRAST MODEL

Dependent Variable	Regression Block 1		Regression Block 2			
	Mediator Variable	R ²	Independent Contrast (Mediated)	R ²	N	Incremental ΔR^2
Performance1	Supervisor Support	.099 ^b	F/F vs M/F	.149 ^c	136: 36/100	.050 ^b
Performance1	Supervisor Support	.098 ^b	All M/M vs Others	.121 ^c	149: 4/176	.023 ^a
Performance3	Supervisor Support	.049	All F/F vs Others	.078 ^a	143: 35/113	.029 ^b
Attitudes1	Supervisor Support	.127	F/F vs F/M	.279 ^b	42: 36/6	.152 ^c
Attitudes2	Supervisor Support	.062	F/F vs F/M	.187	40: 34/6	.125 ^b
Attitudes2	Supervisor Support	.052	All F/M vs Others	.075 ^a	144: 6/138	.023 ^a
Attitudes3	Supervisor Support	.095	F/F vs F/M	.310 ^b	40: 34/6	.215 ^c
Attitudes3	Supervisor Support	.087 ^b	All F/M vs Others	.119 ^b	144: 6/138	.032 ^b
Absenteeism3	Subordinate Attitudes	.278 ^a	F/F vs M/M	.358 ^b	38: 34/4	.080

^a = .1 < p < .05; ^b = .05 < p < .01; ^c = .01 < p < .001; ^d = p < .001.

Performance1: Supervisors View of Employee's Performance; Performance2: Employee's View; Performance3: Unweighted Mean of Performance1 & 2.

Attitudes1: Supervisors View of Subordinate's Attitudes; Attitudes2: Subordinate's Self-View; Attitudes3: Unweighted Mean of Attitudes1 & 2.

Absenteeism1: Supervisor's View of Subordinate's Absenteeism; Absenteeism2: Subordinate's Self-View; Absenteeism3: Unweighted Mean of Performance1 & 2.

¹ The result for this model is inconclusive due to a suppression effect that causes problems with interpretation.

F/M) adds a large and significant .152 points to R^2 in the second block, and there is no evidence of any mediation via supervisor supportiveness; however, the extremely small dyadic comparison size seriously damages the robustness of these findings, especially as the first block R^2 is insignificant. Similarly, female-female dyads contrasted to female-male dyads add significantly to the predication of subordinates' views of their attitudes (attitudes2, diagram 6) and the unweighted average of attitudes (attitudes3, diagram 8) such that these relations are not even partially mediated. Yet, the recurrent problems of miniscule sample size and a nonsignificant set of mediators again afflicts the models. Finally, supervisor supportiveness does fully mediate the effect of the F/M vs. all other dyads contrast on subordinate attitudes1 (diagram 5), although this relation is only of peripheral interest in this study and contains just 6 F/M dyads. These findings, although dubious given the small sample problems, seem to indicate that supervisor support does not constitute a perceptual congruence process of mediation between homogeneous female dyads and subordinates' attitudes. Nor did any evidence surface showing a mediation path of gender similarity through supportiveness to subordinate absenteeism. Overall, **Hypotheses 25(b, c)** received no support:

Dyadic perceptual congruence regarding supervisor supportiveness does not mediate the relation between dyadic gender similarity and: (b) subordinates' attitudes toward managing work and child-care responsibilities; or (c) subordinates' child-care related absenteeism.

Views of Subordinates' Attitudes as a Mediator of Education, Organizational and Position Tenure, and Gender: with DVs Subordinate Performance and Absenteeism

Two testable mediation relationships emerged with the subordinates' attitudes polynomial set as the mediator of the effect of educational similarity on subordinate performance, as diagrams 6 and 7 graph in Figure 30. The statistical findings reveal the absence of full or partial mediation (Tables 22 and 23) of the education similarity polynomials. The increments to R^2 are significant ($.05 < p < .01$) and large (.065; .075) relative to the main effects R^2 indices, respectively regressing subordinate performance₁ and performance₃ on the education polynomial set. In light of these outcomes, **Hypothesis 26a** is not verified:

Dyadic perceptual congruence regarding subordinates' attitudes toward managing work and child-care responsibilities do not mediate the relation between dyadic education similarity and subordinates' performance ratings.

In addition, predictive interrelations were insufficient to test an attitudinally mediated path between educational similarity and

subordinates' absenteeism. **Hypothesis 26b** is consequently not substantiated:

Dyadic perceptual congruence regarding subordinates' attitudes toward managing work and child-care responsibilities do not mediate the relation between dyadic education similarity and subordinates' child-care related absenteeism.

Furthermore, no statistical evidence was discovered suggesting that an attitudinally mediated relationship indirectly connects organizational and position tenure, and the proposed outcome variables. Thus, **Hypotheses 27(a, b) and Hypotheses 28(a, b)** are not confirmed:

Dyadic perceptual congruence regarding subordinates' attitudes toward managing work and child-care responsibilities do not mediate the relation between dyadic organizational (position) tenure and: (a) subordinate's performance; or (b) subordinates' child-care related absenteeism.

Only one model could be tested to determine if dyadic perceptual congruence in subordinates' attitudes mediated the predictive efficacy of a gender contrast. Diagram 10 shows that the dependent measure involved in the analysis is the unweighted average of dyadic views toward subordinates' child-care related absenteeism. While Table 24 highlights a marginally significant increment to the R^2 index of .080, this increase closely approaches the main effects R^2 of .089 from regressing

absenteeism³ on the F/F vs. M/M gender contrast. It is reasonable to believe that full mediation does not occur here. As well, partial mediation is not revealed, as the .080 increment falls within the confidence interval in Table 25. Again, the reader should be aware that the small number of contrasts engenders a high potential for the disturbances of sampling error; moreover, the positive coefficient estimated for the gender contrast in block 2 predicts in a direction of that anticipated. Considering the absence of intervening effects in this model, and the failure to find statistical confirmation that the relationships between dyadic gender similarity and the other dependent measure are mediated by congruence in views of subordinate attitudes, **Hypotheses 29(a, b)** are not validated:

Dyadic perceptual congruence regarding subordinates' attitudes toward managing work and child-care responsibilities does not mediate the relation between dyadic gender similarity and: (a) subordinates' performance ratings; or (b) subordinates' child-care related absenteeism.

Views of Subordinates' Absenteeism as a Mediator of Education, Organizational and Position Tenure, and Gender: with DVs Subordinate Performance and Attitudes

The diagram in Figure 30 reveals no conceptual models with educational dyadic similarity predicting subordinate performance ratings, as they are hypothesized to be mediated by supervisor and subordinate

views of subordinates' child-care generated absenteeism. Since no support for the mediating influence of perceptions of subordinates' absenteeism was elucidated, then, **Hypotheses 30(a, b)** could not be verified:

Dyadic perceptual congruence regarding subordinates' child-care related absenteeism does not mediate the relation between dyadic education similarity and: (a) subordinates' performance ratings; or (b) subordinates' attitudes toward managing work and child-care responsibilities.

Two conceptual models are presented in Figure 30 (diagrams 9 and 10) to describe the perceptions of subordinates' absenteeism mediation of the organizational tenure similarity and subordinate performance link. The statistical results for the mediation tests similar for the performance1 and performance3 models. In essence, the first regression analysis shows no mediation such that the *d* path is superfluous; organizational tenure similarity in dyads does not affect subordinate performance1 through the intervention of perceptual congruence in subordinates' absenteeism. As well, the performance3 model fails to show any form of mediation; the .064 increment to R^2 is significant ($.05 < p < .01$) and is included within the requisite 95% confidence band. In short, it is asserted here that **Hypothesis 31a** is not supported:

Dyadic perceptual congruence regarding subordinates' child-care related absenteeism does not mediate the relation between dyadic

organizational tenure similarity and (a) subordinates' performance ratings.

Analogously, no evidence was found to suggest that the subordinates' absenteeism perceptual congruence polynomials mediated the organizational tenure similarity and subordinates' attitudes relation; nor did these perceptual congruence measures mediate any position tenure and dependent measures interrelations. Therefore, **Hypothesis 31b** and **Hypotheses 32(a, b)** are not confirmed:

Dyadic perceptual congruence regarding subordinates' child-care related absenteeism does not mediate the relation between dyadic organizational tenure similarity and (b) subordinates' attitudes toward managing work and child-care responsibilities.

Dyadic perceptual congruence regarding subordinates' child-care related absenteeism does not mediate the relation between dyadic position tenure similarity and: (a) subordinate performance ratings; or (b) subordinates' attitudes toward managing work and child-care responsibilities.

Finally, no statistical evidence emerged to support **Hypotheses 33(a, b)**. That is, supervisor and subordinate views of the subordinates' problems with child-care generated absenteeism do not mediate the relation between gender similarity and any of the outcome variables. Hence:

Dyadic perceptual congruence regarding subordinates' child-care related absenteeism does not mediate the relation between dyadic gender similarity and: (a) subordinate performance ratings; or (b) subordinates' attitudes toward managing work and child-care responsibilities.

VI. CONCLUSION

This chapter has presented the results for each segment of the analysis. As is evident through the multiple rejections of hypothesized relationships, the theorized intervention of latent perceptual processes between actual similarity measures and particular individual outcomes has generally not been revealed. Table 26 summarizes these hypotheses and the empirical results of the analysis, i.e. hypotheses supported or not supported. Only hypothesis 22a is validated where supervisor supportiveness mediates the relation between dyadic educational similarity and subordinates' performance as rated by their supervisors. That is, perceptual congruence mediation does not function in this sample. Yet, it has been demonstrated quite persuasively that polynomial regression transcends many of the analytical problems associated with difference regressors. The polynomial sets not only explained more variance in outcome measures, in general, they also yielded precise regression estimates of the best-fitting functional forms underlying these

predictive relationships. Indeed, exploring the substantive meaning and application of these structural processes constitutes the theme of the next and final chapter.

Table 26. HYPOTHESES TESTED AND OUTCOMES

<u>Hypotheses (and Sub-Hypotheses)</u>		<u>Supported</u>	<u>Not Supported</u>
Main Effects: Perceptual Congruence			
1-4	Increasing Dyadic Convergence Regarding Perceptions of Supervisor Supportiveness Will Generate Improved Subordinate 1) Performance Ratings, 2) Attitudes toward Integrating Work and Family Responsibilities, 3) Attendance and 4) Organizational Commitment.		1-4
5-7	Greater Manager's Perceptual Congruence (MPC) Regarding Subordinates' Attitudes toward Managing Work and Child-Care Conflict Will Produce Improvement in Subordinates' 5) Performance Ratings, 6) Attendance and 7) Organizational Commitment.		5-7
8-9	Stronger Manager's Perceptual Congruence (MPC) Involving the Child-Care Generated Absenteeism of Subordinates will Produce Improved Subordinate 8) Performance Ratings and 9) Organizational Commitment.		8-9
Main Effects: Actual Similarity			
10-13	As Subordinate and Supervisor become More Similar in Educational Achievements, Subordinates Will Show Enhanced 10) Performance Ratings, 11) Attitudes toward Managing Work and Child-Care Responsibilities, 12) Attendance and 13) Organizational Commitment.		10-13

Table 26 (cont'd)

<u>Hypotheses</u>	<u>Supported</u>	<u>Not Supported</u>
Main Effects: Actual Similarity		
14(a,b)-17(a,b)		
Supervisor-Subordinate Dyadic Organizational (Position) Tenure Similarity Will Generate Enhanced Subordinate 14a,b) Performance Ratings, 15a,b) Attitudes toward Managing Work and Child-Care Responsibilities, 16a,b) Attendance and 17a,b) Organizational Commitment Relative to Dyads in which the Tenure of the Parties Diverges.		14(a,b)-17(a,b)
Main Effects: Gender		
18-21 Dyads in which Both Parties Are Female Will Be Associated with Enhanced Subordinate 18) Performance Ratings, 19) Attitudes toward Work and Child-Care Responsibilities, 20) Attendance and 21) Organizational Commitment Relative to Dyads with Male Supervisors and Female Subordinates.		18-21
Mediation: Perceptual Congruence, and Actual Similarity and Gender Contrasts		
22(a,b,c,d)		
Dyadic Perceptual Congruence Regarding Supervisor Supportiveness Will Mediate the Relation between Dyadic Education Similarity and Subordinate 22a) Performance Ratings, 22b) Attitudes toward Managing Work and Child-Care Responsibilities, 22c) Child-Care Related Absenteeism and 22d) Organizational Commitment.	22a	22b-22d

Table 26 (cont'd)

<u>Hypotheses</u>	<u>Supported</u>	<u>Not Supported</u>
23(a,b,c,d) Dyadic Perceptual Congruence Regarding Supervisor Supportiveness Will Mediate the Relation between Dyadic Organizational Tenure Similarity and Subordinate 23a) Performance Ratings, 23b) Attitudes toward Managing Work and Child-Care Responsibilities, 23c) Child-Care Related Absenteeism and 23d) Organizational Commitment.		23a-23d
24(a,b,c,d) Dyadic Perceptual Congruence Regarding Supervisor Supportiveness Will Mediate the Relation between Dyadic Position Tenure Similarity and Subordinate 24a) Performance Ratings, 24b) Attitudes toward Managing Work and Child-Care Responsibilities, 24c) Child-Care Related Absenteeism and 24d) Organizational Commitment.		24a-24d
25 (a,b,c,d) Dyadic Perceptual Congruence Regarding Supervisor Supportiveness Will Mediate the Relation between Dyadic Gender Similarity for Same-Sex Dyads and Subordinate 25a) Performance Ratings, 25b) Attitudes toward Managing Work and Child-Care Responsibilities, 25c) Child-Care Related Absenteeism and 25d) Organizational Commitment.	25b	24a,24c,24d

Table 26 (cont'd)

<u>Hypotheses</u>	<u>Supported</u>	<u>Not Supported</u>
26(a,b,c) Dyadic Perceptual Congruence Regarding Subordinates' Attitudes toward Managing Work and Child-Care Responsibilities Will Mediate the Relation between Dyadic Education Similarity and Subordinate 26a) Performance Ratings, 26b) Child-Care Related Absenteeism and 26c) Organizational Commitment.		26a-26c
27(a,b,c) Dyadic Perceptual Congruence Regarding Subordinates' Attitudes toward Managing Work and Child-Care Responsibilities Will Mediate the Relation between Dyadic Organizational Tenure Similarity and Subordinate 27a) Performance Ratings, 27b) Child-Care Related Absenteeism and 27c) Organizational Commitment.		27a-27c
28(a,b,c) Dyadic Perceptual Congruence Regarding Subordinates' Attitudes toward Managing Work and Child-Care Responsibilities Will Mediate the Relation between Dyadic Position Tenure Similarity and Subordinate 28a) Performance Ratings, 28b) Child-Care Related Absenteeism and 28c) Organizational Commitment.		28a-28c
29(a,b,c) Dyadic Perceptual Congruence Regarding Subordinates' Attitudes toward Managing Work and Child-Care Responsibilities Will Mediate the Relation between Dyadic Gender Similarity and Subordinate 29a) Performance Ratings, 29b) Child-Care Related Absenteeism and 29c) Organizational Commitment.		29a-29c

Table 26 (cont'd)

<u>Hypotheses</u>	<u>Supported</u>	<u>Not Supported</u>
30(a,b,c) Dyadic Perceptual Congruence Regarding Subordinates' Child-Care Related Absenteeism Will Mediate the Relation between Dyadic Education Similarity and Subordinate 30a) Performance Ratings, 30b) Attitudes toward Managing Work and Child-Care Responsibilities and 30c) Organizational Commitment.		30a-30c
31(a,b,c) Dyadic Perceptual Congruence Regarding Subordinates' Child-Care Related Absenteeism Will Mediate the Relation between Dyadic Organizational Tenure Similarity and Subordinate 31a) Performance Ratings, 31b) Attitudes toward Managing Work and Child-Care Responsibilities and 31c) Organizational Commitment.		31a-31c
32(a,b,c) Dyadic Perceptual Congruence Regarding Subordinates' Child-Care Related Absenteeism Will Mediate the Relation between Dyadic Position Tenure Similarity and Subordinate 32a) Performance Ratings, 32b) Attitudes toward Managing Work and Child-Care Responsibilities and 32c) Organizational Commitment.		32a-32c

Table 26 (cont'd)

<u>Hypotheses</u>	<u>Supported</u>	<u>Not Supported</u>
33(a,b,c)		
Dyadic Perceptual Congruence Regarding Subordinates' Child-Care Related Absenteeism Will Mediate the Relation between Dyadic Gender Similarity and Subordinate 33a) Performance Ratings, 33b) Attitudes toward Managing Work and Child-Care Responsibilities and 33c) Organizational Commitment.		33a-33c

CHAPTER SIX

AN INTERPRETATION AND DISCUSSION OF THE STATISTICAL FINDINGS

I. Introduction

The salient objective of this chapter is to synthesize, interpret, and discuss the statistical results reported in the previous chapter. Pursuing that objective, the chapter will open with a brief, general presentation of the central findings. Section II will therefore outline the fundamental analytical outcomes of the study.

Critically, the central theoretical interest in this study has been to identify and evaluate an unobservable process postulated to explain the efficacy of dyadic actual similarity as predictor variables of several individual outcome measures. Because of the primacy of this task, section III-A will review the theoretical and empirical bases for mediation. Then, section III-B embarks on an analysis of mediation in the general structural model, as specified in the 18 distinct empirical models tested. Subsequently, the main effects portions of the models—paths *a* and *c*—will be assessed in sections IV-A and IV-B. The purpose is to capture the differential explanatory utility of conventional difference score indices as

contrasted with the polynomial sets advocated by Edwards (1993a; 1993b; 1994; 1995), and to illuminate the influence of congruence processes on individual outcomes. That is, these sections will review the regression potency of constrained difference scores relative to unconstrained polynomial regressors in a statistical critique of difference score methodology. Section V will concisely explore implications of the findings for management and labor, and those for broader social policy. Finally, the sixth section will summarize the contributions of this study, identify and discuss the conceptual and methodological limitations of the study, and explore an agenda for future research in dyadic congruence relationships.

II. Results of the Analysis in Brief

In the most practical sense, three provocative findings emerged from the analysis of the survey data in this research. The first two both indicate that the efficacy of actual similarity in dyads, as a predictor of favorable outcomes for subordinates, is dubious. Given the regression and response surface estimates, it is clear that educational similarity, organizational tenure similarity, and position tenure similarity do not generate positive outcomes for subordinates. Indeed, not one response surface indicates that close or exact demographic match between supervisor and subordinate predicts a substantially more favorable set of outcomes for the subordinate.

Rather, the graphs visually support the result that dyadic demographic dissimilarity is associated with more favorable outcomes for subordinates in almost every instance. In short, demographic convergence between supervisor and subordinate is not a positive and fundamental antecedent of subordinate outcomes in this sample.

This unanticipated discovery can be rationalized in several ways. The most obvious—and perhaps most likely—explanation devolves to the extreme homogeneity of the sample. All but six of the subordinates in the sample are female nurses or medical personnel with two years of college training and fairly long organizational/position tenure. These factors strongly imply that they have their workplace roles and responsibilities clearly prescribed, and their dyadic relationship dynamics routinized. In essence, this homogeneity attenuates the influence of supervisor demographic variance because interactions with subordinates have become so reflexive that interpersonal dissimilarities make little difference in the quality and consistency of the dyadic relationship. Secondly, a crucial intervening variable was not measured and evaluated. That is, data was not collected on the duration of the dyadic relation. It is believed, in retrospect, that this variable plays a central moderating role between demographic similarity and subordinates' outcomes. In effect, it seems reasonable that

the time the supervisor and subordinate are engaged in the leader-member exchange dynamic intensely shapes their degree of interpersonal affectation (Byrne 1971), an intervening process theorized in the general model. Moreover, protracted dyadic relationships are also expected to experience a convergence of work values (Meglino et al., 1989). In short, both increased interpersonal affectation and values congruence between supervisor and subordinate are likely to have diminished the importance of demographic similarity in this sample.

A second interesting result of this analysis involves the less favorable outcomes discovered for female subordinates managed by female supervisors compared to female subordinates managed by male supervisors. In every contrast, same-sex female dyads are associated with poorer subordinate work and child-care outcomes relative to male-female dyads, and all other dyadic combinations. This finding is counterintuitive and contravenes the fundamental proposition of this study that dyadic congruence across member characteristics will generally produce positive results for subordinates. Several explanations are warranted.

First, it is proposed that the male supervisors in this sample may not possess the similar nursing background that is characteristic of the females in this sample. Such a divergence in training would attenuate male

supervisors' ability to perceive the subtle differences in their subordinates' medical-treatment performance so that a halo effect occurs in the performance appraisal process. Alternatively, it is not inconceivable that male supervisors hold specific training in management techniques while female supervisors have either risen through the nursing ranks or obtained advanced medical degrees. This discrepancy might impede the supervisory insight of female managers relative to male managers so that their respective subordinates are appraised through different standards, especially since the performance responses were based on informal evaluation rather than a formalized appraisal system. Secondly, the former proposition raises the rationale that female supervisors who have performed on nursing staffs are much more demanding of their female subordinates than male supervisors who have not engaged in nursing care. Thirdly, and perhaps most importantly, it is posited that female supervisors simply have not gained the extensive practical experience possessed by male supervisors in view of females' fairly recent entry into managerial positions, as Wexley and Pulakos (1983) have suggested. Descriptive statistics for the sample marginally support this assertion. Moreover, female supervisors are not likely to have received the extensive managerial mentoring from female incumbents that is typically provided for male

supervisors by male incumbents in many organizations. Finally, it is probable that female supervisors, as the primary care givers, have experienced the work and child-care conflicts that their female subordinates are currently experience, while male supervisors have not faced the exigencies of child-care. The more accurate perceptions of subordinates' child-care by female supervisors is critical in this study since all subordinate outcomes are measured with respect to work and child-care management. Hence, the more precise perceptions of female supervisors lead to more accurate—yet less favorable—judgements of their female subordinates' work and child-care problems. Clearly, all these conditions together provide persuasive explanation for the apparently suppressed relations between female supervisors and their female subordinates.

Finally, this analysis indicates that polynomial regression (Edwards, 1993a; 1993b) is consistently a more powerful predictor of outcome measures than the difference scores traditionally used in congruence studies. While the underlying functional forms revealed do not strongly support the efficacy of dyadic congruence as a predictor of subordinate outcomes, it is affirmed that in most cases, the constraints of difference scores are rejected. That is, the significantly larger R^2 s derived from polynomial regression reaffirm that the functional relations in congruence

analysis must be described in three dimensions rather than by the two dimensional linear forms imposed by difference score regression. The practical implication is that fit or congruence studies in the future must always incorporate tests of significant difference between these methods of estimation before presuming that difference scores efficaciously describe the functional form of the congruence relationship to be evaluated.

III. The Efficacy of Perceptual Congruence Mediation

A. Review of the Theoretical Mediation Model

The fundamental intent of this study has been to ameliorate, as far as possible, the theoretical and empirical tension existing between the foundational precepts of Pfeffer's (1983) Organizational Demography and its progeny, and those of Schneider's (1983) Attraction-Selection-Attrition paradigm, as originally conceived. Recall that Pfeffer (1983) advocated analyzing variables that measure demographic distributions in organizations because they are objective and allegedly parsimonious. Specifically, they are frequently powerful predictors of organizational events, they are easy to measure, and they eschew the reliability and validity problems of psychosocial constructs. Thus, Pfeffer's (1983) work is predicated on a *congruence assumption* that as demographic characteristics for individuals, dyads, groups and larger organizational units

converge or are the same, various outcomes can be predicted by such similarity (or dissimilarity), and explanations can be inferred (Lawrence, 1997). In short, Pfeffer has eschewed the utility of measuring and testing latent processes that might intervene in the demographic similarity/outcome structural linkage.

Schneider's work with ASA poses an obvious teleological antithesis to organizational demography. Schneider's salient precepts, while acknowledging the conceptual vigor of similarity or congruence forms, accentuate the unobservable psychosocial processes that fundamentally describe and influence many organizational events. Indeed, he finds that the emergence of interpersonal similarity is endemic in organizations because entrants have self-selected into, and incumbents have recruited these entrants into, an organization, on the basis of perceived similarity and the attraction it engenders. The implication is that Pfeffer's approach, without structural adjustment, is anemic as it neglects the processual dynamics underlying interpersonal similarity, as Lawrence (1997) points out:

One of Pfeffer's central arguments for using demographic variables [is] methodological. He suggested that because critical concepts such as attitudes, cognitions, and values cannot be measured directly, significant problems plague organizational research: measurement error, differences in conceptual definitions, violations of theoretical parsimony, and low levels of explained variation. He then argued

that demographic variables may prove superior to these better known concepts because they are easily measured and produce more parsimonious explanation However, by invoking Pfeffer's justifications, researchers usually leave the [latent] concepts unmeasured and the hypotheses untested. As a result, subjective concepts and their relationships within research models have become the "black box" of organizational demography [In short], Pfeffer's instrumental approach, emphasizing prediction over explanation, has limitations. By assuming that all subjective concepts have equal theoretical value or by dismissing them altogether, this approach eliminates numerous explanations for the relationship between demographic predictors and outcomes The conclusion is that demographic studies involving hypothesized but untested subjective concepts run a high risk of spurious explanation (p. 2).

Critically, this analysis has been driven by efforts to overcome the theoretical and methodological fallacies imbued in organizational and relational demography. Along with the explanatory utility of psychosocial mediating processes inherent in Schneider's work, this objective has been further accomplished by infusing into the conceptual model empirically substantiated congruence mechanisms. The general analytic framework embeds the three recognized forms of similarity (or congruence) into the model to illuminate antecedent and intervention structures: these empirical measures are perceptual congruence, actual similarity and perceived similarity (Turban and Jones, 1988). Due to data insufficiency, the somewhat redundant and ambiguous perceived similarity construct is not measured or tested in this work. Importantly, the nexus of perceptual

congruence and actual (demographic) similarity, as they effect outcomes, operationalizes the pivotal functional relationship in Figure 1 and establishes the sine qua non point of departure from the explanatory inadequacies surfaced in organizational and relational demography. In effect, perceptual congruence in supervisor and subordinate judgements about supervisor supportiveness, subordinates' attitudes, and subordinates' absenteeism embody and breathe empirical life into the black box of organizational demography as they are hypothesized to intervene between the actual similarity/individual outcomes linkage. Hence, the objective here is to transcend the untested and potentially spurious conclusions reached by organizational demographic researchers.

In addition, the larger theoretical domain or context into which these conceptual and empirical elements are injected encompasses a developmental, longitudinal process of Dyadic Organizing (Graen and Scandura, 1987). These scholars have constructed a sound, empirically based framework for understanding the emergence of affectation, cooperation, and overall trust in the dyadic organizational relationship that infuses structured and predictable courses of interaction into dyadic functioning. Integrating theory and findings from the Role Episode Model (Katz and Kahn, 1978) and the Vertical Dyad Linkage model (Graen and

Cashman, 1975), Graen and Scandura (1987) present the stable, and final, ***role-routinization*** phase of dyadic organizing that describes the interpersonal work context in which the mediation model is embedded. That is, given the high mean levels of supervisor and subordinate organizational and position tenure in this sample, dyadic relationships have already been consummated so that interactions, exchanges and quid pro quos are somewhat homeostatic, as dyadic organizing posits. Thus, the process of perceptual congruence mediation is expected to be operative and detectable where actual similarity variables predict dependent individual outcomes.

Lastly, the structure and implicit dynamics of the model are further embedded in the topical domain of child-care difficulties that interfere with employees' work responsibilities. Indeed, it is taken as axiomatic here that time-allocation, strain-production and behavioral-conflicts (Greenhaus and Beutell, 1985) entail a reciprocal, pernicious spillover of tension between work and family activities that damages performance and attitudes in both venues. This should be especially evident in this empirical sample which is comprised primarily of females—as subordinates—who use various mixes of familial assistance, on-site child-care, and private providers to cope with work and child-care clashes. Hence, the quality of their dyadic relations

with supervisors is critical, and convergence in perceptions that touch issues of child-care stress in the workplace is expected to be ameliorating.

B. The Absence of Perceptual Congruence Mediation

The results presented in Chapter 5 document a general paucity of the perceptual congruence mediating process conjectured to link demographic predictors and psychosocial dependent measures. That is, in 16 of the 18 models tested, actual similarity influenced subordinates' performance ratings, attitudes, and absenteeism directly without any partitioning of DV variance with the 3 perceptual congruence variables. Dyadic agreement on supervisor support for subordinates' child-care work problems, subordinates' attitudes toward managing work and child-care responsibilities, and subordinates' child-care generated absenteeism does not intervene in the structural relationships in this sample. The subsequent paragraphs will first explore the 2 models in which full mediation was found and then present various rationales for the apparent absence of the hypothesized mediation across the other models.

Full Mediation Realized: Views of Supervisor Supportiveness and Mediation of Actual Similarity; Views of Subordinates' Absenteeism and Mediation of Organizational Tenure

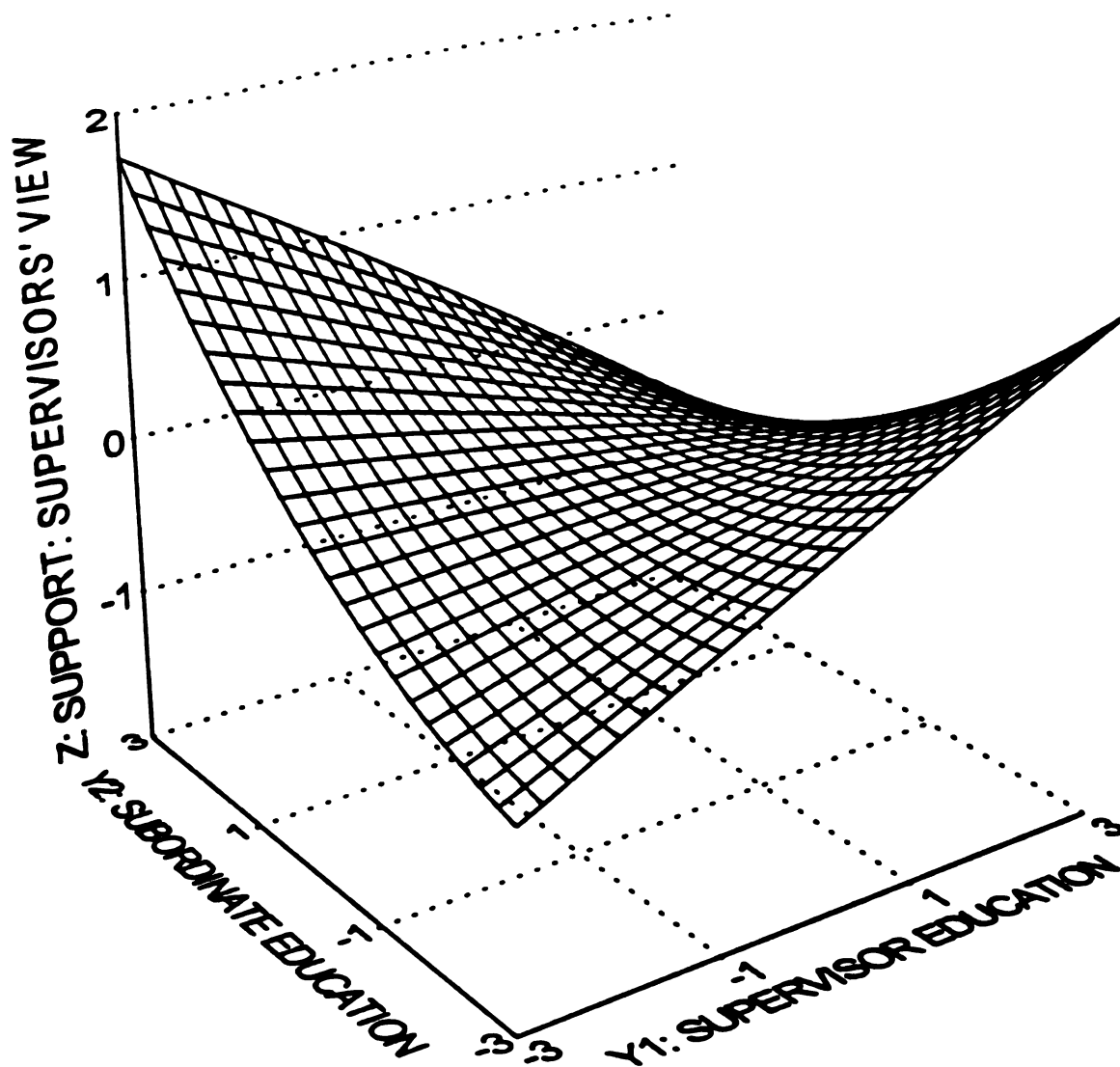
The supervisor supportiveness polynomial set is the only perceptual congruence indicator to show mediation interventions—in 2 models—

between dyadic actual similarity, and outcomes—subordinates' performance and attitudes. Beginning with the demographic variable education, the general congruence assumption has been verified in at least one study involving educational similarity and subordinates' performance ratings (Zalesny and Kirsch, 1989). In that study, the authors discovered a strong positive correlation between educational similarity in dyads and supervisory performance ratings of subordinates. Since an inverse linkage was discovered in this analysis (see Table 10 and Figure 16), further exploration for the cause of this interpersonal process was undertaken, and full mediation by the supervisor supportiveness variables was found. In this case, dyadic educational levels clearly influence supervisors' performance ratings of subordinates only through a latent perceptual process.

However, the stream of congruence in this process is problematic. The subsuming mediation theme suggests that dyadic convergence in education is a necessary antecedent for generating or explaining perceptual congruence in dyads—that is, converging views of supervisor supportiveness for subordinates' child-care in this case. The multivariate regression results, though, do not verify this sequential flow of congruence. Regression coefficients and indices in the separate univariate models in

Table 20 indicate that the relationship between educational similarity polynomials and dyadic perceptions of supervisor supportiveness depends primarily on the inducement of changes in the supervisory dependent measure: supervisors' self-evaluation of their performance (Support1 or MSSUPP). In other words, dyadic convergence in education does not induce or precede perceptual congruence (or incongruence) in supervisor and subordinate views of supervisor supportiveness. In fact, in the univariate regression, the positive, significant coefficients on the subordinates' linear and squared terms (Y_2 , Y_2^2), and the negative coefficient on the cross-product term (Y_1Y_2) demonstrate that high levels of dyadic educational *dissimilarity* are associated only with more favorable supervisors' views of their own supportiveness (see Figure 32).

Clearly, these relations are both unanticipated and theoretically provocative. Despite a fully mediated relationship between dyadic educational similarity and subordinate performance ratings, the perceptual similarity process postulated by Turban and Jones (1988) is not evident here. Several explanations are proffered for this finding. First, a temporal distinction in variable conceptualization probably convolutes the nexus of dyadic educational similarity and perceptions of supervisor supportiveness. That is, educational levels constitute a broader, much less fluid employee



**Figure 32. SUPERVISORS' VIEW OF THEIR SUPPORTIVENESS
REGRESSED ON DYADIC EDUCATION LEVELS**

$$Z = -.022 - .039X_1 + .070X_2 - .002X_1^2 - .116X_1X_2 + .045X_2^2$$

characteristic than employee perceptions of a specific phenomenon or condition such as judgements about a supervisor's supportiveness for a given subordinate's work/child-care difficulties, which are likely to change situational. Indeed, both Byrne (1971) and Schneider (1983) conceived of the similarity-attraction process as involving more permanence and a more limited volatility than typically characterizes situational perceptions. In short, this processual conflation implies that a congruence stream may obtain only if an additional intervening process or processes generate an interpersonal attraction more intense and less ephemeral or intermittent than perceptions of supportiveness. Turban and Jones' (1988) more general *perceived similarity* construct based on similar characteristics and experiences exemplifies a more immutable perceptual process that may be necessary to engender a causal flow of congruence. Similarly, other forms of perceptual congruence may be absorbing the variance in the relation between dyadic education and subordinate performance. For example, the impact of increasing educational similarity on subordinate performance ratings may be more effectively transmitted by dyadic congruence in value systems (Meglino, Ravlin and Adkins, 1989) or communication compatibility (Simon, 1957; Tsui and O'Reilly, 1989), as these processes suppress or dominate the effect of congruence on supervisor supportiveness

for subordinates' child-care issues. Finally, similar educational levels are not, *a priori*, expected covariates of work and family disturbances since work and family conflict emerges at varying times for different parents. Work/child-care problems are more a function of decisions to start a family, income, availability of familial help, day-care options, government subsidization and so forth (Kossek, 1990; Kossek and Nichol, 1992). In fact, in this sample no significant correlations were found between education level and number of children. Hence, the subordinate's need for perceptual congruence on supervisor supportiveness is not likely to depend solely on educational similarity in the dyad.

Perceptions of supervisor supportiveness were also found to fully mediate the predictive relationship between one model of gender similarity (F/M vs. all others) and subordinates' reported attitudes toward managing their work and child-care responsibilities. Contrary to the proposed relation, the same-sex dyads with female supervisors and subordinates were inversely linked to both views of supervisor supportiveness and subordinates' attitudes relative to female-male dyads for those gender contrasts that were not mediated. This means that gender similarity in the F/F dyads was actually associated with jointly depressed perceptions of the supervisors' supportiveness variables, which then predicted-diminished

attitudes for female subordinates. As has been pointed out in the literature, this is probably caused by women's role as the primary caregiver (Goons and Burden, 1987; Couture, 1984; Jack and Mitts, 1985; Kossek and Nichol, 1992). On the other hand, the male subordinates and their female supervisors in this model likely reported satisfaction with supervisor supportiveness and favorable attitudes toward managing child-care because these men did not deal with most of child-care responsibilities. The univariate coefficients in Table 21 indicate that dissimilarity in gender makeup (F/M vs. all others) generates congruence in supervisor supportiveness, which sequentially generates more favorable subordinate attitudes at jointly increasing dyadic levels of perceived supportiveness (Figure 5). While this gender contrast and mediator relationship contravenes the findings of increased role ambiguity and role conflict for mixed-gender dyads in relational demography (Tsui and O'Reilly, 1989), it must be interpreted very cautiously. Given that only 6 mixed dyads were compared to all other combinations, it may constitute a statistical artifact, and drawing firm conclusions would be specious.

The Absence of Mediation by Perceptual Congruence Measures: Educational Similarity

As has already been reported, the effects of educational similarity have not generally been mediated by perceptual congruence constructs. Hypotheses 22 (b,c,d), 26 (a,b,c) and 30 (a,b,c) were not verified, either because (1) significant main effects relations were absent for one or more of the paths *a*, *c*, or *d*, and mediation could not be tested or (2) full/partial mediation was not found. This section and subsequent sections will discuss mediation failure in the latter set of models that were testable (see Tables 22-25).

It is first argued here that views of supervisor supportiveness did not mediate the relation between dyadic education levels and the averaged performance measure because this subordinate performance construct is not a robust construct. It flattens or suppresses the trends of its component constructs, which are quite divergent. Of course, this was the purpose, so that an ostensibly more objective measure could be constructed. However, in this case it is believed that the informal and confidential reporting of subordinates' performance ratings renders performance¹ the most accurate evaluation of each subordinate's true performance.

With respect to models 3 and 4 in Figure 30 (see also Tables 24 and 25), the reasons cited above for the failure of supervisor supportiveness

perceptions to mediate the linkage between educational similarity and the outcome variables—attitudes¹ and attitudes³ in this case—are reiterated. Primarily, the temporal distinction between congruence variables and their similarity processes is the likely cause of the absence of mediation; as measured, supervisor supportiveness views are prone to variation over time while dyadic education levels are much more stable. The snapshot perspective retrieved in cross-sectional research probably fails to capture any dynamic relationship between changing perceptual congruence on supportiveness and educational attainment. Instead, a more permanent form of perceptual congruence might illuminate the structural relation. In fact, the dynamic exchange process postulated in the model is likely to be interrupted episodically given this temporal fluctuation in supervisor support. That is, the inducement-contribution process posited by Graen and Scandura (1987) may only function intermittently, when a subordinate experiences a child-care exigency, and the supervisor responds with an inducement of perceptual convergence. In short, it is presumed that perceptual congruence on views of supervisor supportiveness for child-care problems is too ephemeral and too erratic to consistently intervene in a stream of congruence relations between dyadic educational levels and individual outcomes.

Similarly, dyadic perceptions of subordinates' attitudes toward managing work and child-care responsibilities do not mediate dyadic educational similarity in its relation with subordinate performance. Although hypothesis 26a is not supported, it is less persuasive to argue that education and subordinates' attitudes are as disconnected in a temporal contrast as the education, supervisor supportiveness relationship. Employees in general can be expected to have developed strong, unambiguous attitudes toward juggling work and child-care activities in their child-rearing experiences. More plausible is an absence of covariation between dyad members' educational levels and views of subordinates' attitudes, and parenting children. Indeed, a separate correlational analysis demonstrated no relationship between number of children and perceptions of subordinates' attitudes for either dyadic party. Moreover, 52% of supervisors in these models did not have children under 18. Both these findings suggest that a perceptual gap may exist in supervisors' empathy for subordinates' child-care pressures, and that congruence on views of subordinate attitudes is not generated by similar education. Note that a separate mediation analysis was conducted to test the preceding conjecture. A fully mediated relationship was discovered between education similarity and subordinate performance¹ and

performance² after controlling for the absence of children under 18. Although the posited stream of congruence did not obtain, subordinate education in the dyads was predicted an improvement in supervisors' perceptions of subordinates' attitudes, at an increasing rate. The final conclusion is that a perceptual process involving child-care issues mediates educational influences primarily when child-care becomes a salient concern to both dyadic parties.

The Absence of Mediation by Perceptual Congruence Measures: Organizational and Position Tenure Similarity

There was no finding of full or partial mediation of either organizational or position tenure as predictors of individual outcomes. In fact, no models involving position tenure as a mediated variable could even be tested, so that hypotheses 24 (a,b,c,d), 28 (a,b,c) and 32 (a,b,c) were rejected by analytical default. In contrast, organizational tenure similarity was tested to determine its relationship with subordinate performance. As Tables 22 and 23 confirm, neither perceptual congruence on supervisor supportiveness or subordinates' child-care related absenteeism mediated this relationship. Hence, hypotheses 23 (a,b,c,d), and 31 (a,b,c)—and hypotheses 27(a,b,c) by default—were not confirmed.

A first conjecture for the absence of an intervening relationship again emphasizes the conceptual, and functional, distance between years of

tenure and difficulties with child-care affecting workplace performance. These do not seem like natural covariates since tenure with an organization, and beginning a family and confronting child-care exigencies, may or may not coincide. In other words, it is again believed that failure to control for dyads in which at least one member does not have dependent children in the home may conceal the intervention of a perceptual congruence process. However, additional analyses did not validate this assertion.

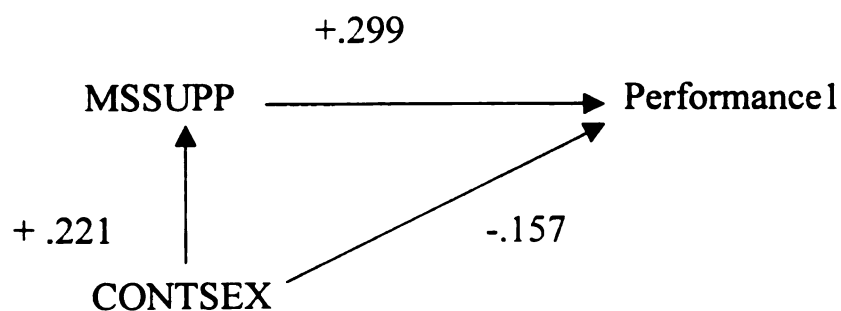
In particular, these results do not comport with the empirical linkage of long tenure and reduced absenteeism cited in the literature (Nicholson et al., 1977; Spencer and Steers, 1980; Garrison and Muchinsky, 1977; Tsui et al., 1992). Thus, the second explanation offered is that the perceptual congruence process postulated here, because it involves fluctuating absenteeism problems, is susceptible to interruptions in the psychosocial congruence mediation dynamic, and may be eluding detection in a cross-sectional analysis. Finally, it may be that while an association of perceptions is observed statistically as reported by respondents, this congruence is not operationalized in the real workplace. That is, employees engaging in accommodation (Lambert, 1990) might actually restrict activity in the workplace or home domain so that reported congruence on supervisor supportiveness or subordinates' absenteeism

perceptions is transcended by alternative behavior and arrangements at work. Overall, it is apparent that the perceptual constructs implemented in this study do not mediate the relations between organizational and position tenure, and subordinate performance.

The Absence of Mediation by Perceptual Congruence Measures: Gender Similarity

Substantial interpretive difficulty arises in the examination of mediation of the predicative gender contrast regressors (Table 24). While mediation is not suggested by the results, the statistical limitations imposed by the small sample sizes and the extremely disproportional number of dyad cohorts essentially renders further interpretation impotent for most of the models. Thus, only the first three models are reviewed.

Unfortunately, the first model is inconclusive due to a statistical relationship commonly referred to as *suppression* (Cohen and Cohen, 1983). Given the most important relationships in this model, the following diagram depicts the correlational pattern:



As Cohen and Cohen (1983) have pointed out, suppression is plausible in this case because force and counterforce—negative and positive correlations—occur simultaneously. The result, as Table 24 indicates, is that the main effects R^2 is suppressed by the hidden, indirect path of positive relationships so that in the mediation regression's second block, the incremental change in R^2 from the gender contrast variable exceeds the main effects R^2 .

The second and third models indicate that gender similarity in same-sex female dyads is not mediated by views of supervisor supportiveness as the former predicts subordinate performance. It is interesting to point out that female-female dyads are associated with supervisors' views (MSSUPP) that they are supportive of their subordinates' child-care problems in Table 21 ($B = .160, p < .05$), although subordinates' disagree ($B = -.212, p > .10$). This relation partially verifies empirical findings that employees—in this case apparently just supervisors—benefit from same-sex leader-member relations (Green et al., 1996; Tsui and O'Reilly, 1989; Pulakos and Wexley, 1983). However, the overall linkage with performance ratings continues to confirm other empirical work demonstrating that females receive lower performance evaluations. Importantly, this occurs in a homogenous dyadic environment that was

expected to improve perceptual convergence and thereby enhance outcomes for women, as purported in the empirical literature (Pulakos and Wexley; 1983; Wexley and Pulakos, 1983; Tsui and O'Reilly, 1989). Clearly, gender similarity in dyads does not predict congruence in dyad members' perceptions of subordinates' difficulties with child-care and work, at least not in this sample.

C. Conclusion: The Absence of Perceptual Mediation of Actual Similarity

The preceding paragraphs have illuminated the fundamental absence of a perceptual congruence process mediating the structural path between forms of actual similarity and individual outcomes for subordinates. Overall, this result has contradicted the central theme of this study that perceptual congruence constitutes the teleological linking process accounting for the black box of organizational demography. Yet, this does not justify a return to unexplained prediction with actual similarity measures. Lawrence (1997) clarifies the impotency of this "congruence assumption" as a transcendent explanation in organizational studies:

In sum, the congruence assumption probably masks elaborate relationships between demographic variables and outcomes. This is "paper" parsimony, parsimonious only because the more complicated interactions are assumed away Demographic variables commonly predict organizational outcomes, but the underspecified role of subjective concepts within such models greatly reduces their theoretical power The congruence

assumption moves researchers farther and farther away, both empirically and theoretically from the actual mechanisms underlying observed relationships In the final analysis, who cares whether empirical relationships are present between demographic variables and organizational outcomes if the reasons for these relationships cannot be explained? Demographic variables should play no role in organizational studies unless we understand what role they are playing (p. 16)

Understanding the deficiency of the proposed structural relationship turns on several empirical and theoretical rationales that do not accede to the scientifically nebulous and pernicious black box myopia. Perhaps it is most important to recognize that perceptual congruence constitutes but one of many explanative latent processes that are candidates for structural intervention. It has already been asserted that a more general, permanent and stable similarity in perceptions may be required to assess the relationship between actual similarity and individual outcomes in the organization. Perceptual congruence involving one very specific issue—such as work and child-care—is likely to be so volatile from situation to situation and individual to individual that its mediating potential cannot be captured in a single cross-sectional view of a palpably dynamic process. Certainly, Edwards (1991) has asserted that the dynamics of congruence processes are bidirectional, limiting the explanatory power of cross-sectional analyses. This consideration raises a corollary issue: that the intervening process has been statistically and/or theoretically misspecified.

Perceptual congruence was modeled as a mediator because its predictive characteristics have been recognized and tested modestly in the literature (Kozlowski and Doherty, 1989; Turban and Jones, 1988; Wexley and Pulakos, 1983; Hatfield and Huseman, 1982; Wexley et al., 1980). A moderating intervention may be a more correct specification in this sample, or one or more of numerous cognitively-based mechanisms may be involved in the intervention linkage, such as interpersonal communication (Tsui and O'Reilly, 1989) or cognitive stereotyping (Tsui et al., 1994). In fact, since this research is an exploratory endeavor predicated on a theoretical integration of multiple concepts and structural relations heretofore not synthesized, the probability of discovering the optimal unobservable relationships seems *a priori* quite small. As Lawrence (1997) affirms:

A first conclusion about the congruence assumption is that *some theories are more probable than others* [G]iven that in many cases there is no relationship between demographic variables and subjective concepts, it is also likely that either no theory is appropriate or the appropriate theory is quite complex. Inadequate data . . . may pose a serious limitation for demographic studies Differences between theories are important and should be accorded thoughtful treatment. [In short], a logical extension of this conclusion is that *the probability of misspecifying demographic models increases with the number of possible theories*. When the role of subjective concepts is left unspecified, the list of theoretical possibilities expands. The greater the number of possible theories, the greater the likelihood that any given theory is incorrect, important variables are left out, unimportant variables are left in,

unnoted interactions are present between unmeasured variables, and variables are measured inappropriately (p.15).

Thirdly, the issue of temporal measurement disparities that occur naturally between perceptions and demographics in the context of this analysis is a suspected cause of mediation failure. As previously noted, the components of actual similarity are fairly static while the component measures of dyadic perceptions are susceptible to intermittent change produced by exogenous pressures on child-care arrangements. Gender, educational and tenure similarity do not, on extensive reflection, seem to be inherent covariates of supervisors' and subordinates' perceptions of the latter's child-care difficulties. This problem is an extension of the commensurate measurement issue surfaced by Edwards (1991) and Kristof (1996). That is, while components of the perceptual congruence variables are commensurate and measured indirectly, and actual similarity components are also commensurate variables, they are distinguishable as subjective and objective measures, respectively. Hence, they are not comparatively commensurate in a psychometric sense, and this probably diminishes covariation.

In summary, the failure of perceptual congruence in dyads to behave as a mediator of actual similarity variables contributes to the understanding of the similarity-attraction and organizational demography interrelation in

an exclusionary sense. In this sample, perceptual congruence is not involved in the structural network proposed in the general model. Thus, this process cannot be asserted to supplant the cognitive stereotyping process postulated (Tsui et al., 1994)—but not tested—as an explanation for the observed influence of demographic similarity on individual organizational outcomes.

IV. An Examination of Main Effects Relationships

The main effects results in this study surface two important outcomes. First, in almost all cases where significant relationships are found, the polynomial regressors modeled by Edwards (1993a; 1993b; 1994; 1995) are stronger predictors than difference scores and more precisely delineate the functional forms of the dependent relationship. Secondly, perceptual congruence in dyads does not symmetrically generate improvements in outcomes for subordinates as dyadic views change and, in some cases, does not significantly predict outcomes more favorably than incongruent dyadic relationships. This section will focus on the substantive results that are generally contrary to hypotheses 1 – 21.

A. Interpreting Main Effects: Perceptual Congruence and Dependent Measures

Views of Supervisor Supportiveness and Outcomes

Table 5 shows that the polynomial set associated with leader-members' views of supervisor supportiveness are effective predictors of subordinate performance ratings. The polynomials' relationship to supervisors' ratings of subordinate performance indicates that at high levels of dyadic agreement about supervisors' supportiveness, subordinates' performance ratings reach their highest level. Importantly, moving in a negative direction down the $X_1 = X_2$ line of the response surface in Figure 3, perfect dyadic congruence generates decreasing ratings of subordinates' performance, although these ratings are slightly higher than for incongruent dyads at similar congruence levels in either easterly or westerly directions along the line of symmetry. The meaning of this relationship is that as supervisors and subordinates increasingly agree that the supervisor is supportive, subordinates' performance ratings increase. This is consistent with Graen and Scandura's (1987) theorization that supervisor supportiveness is a fundamental element in the exchange process. Empirically, this result agrees with Pulakos and Wexley's (1983) discovery that perceptual similarity in the dyad—although a broader construct—can generate favorable performance ratings for subordinates; and this result

replicates Wexley et al.'s (1980) finding that dyadic perceptual congruence on supervisory supportiveness can induce improved subordinate performance. Moreover, this affirmation of theory and empiricism is not challenged by the relation in model 3 (Table 5; Figure 4), given that one of the components of performance³ is not significant; its interpretation should be accorded little, if any, weight.

A similar relationship obtains for views of supervisor supportiveness and the prediction of subordinate attitudes¹. Essentially, as supervisors' and subordinates' perceptions increase along the line of symmetry on the response surface (Figure 5), supervisors' assessment of their subordinates' attitudes rises. Again, this conforms to the hypothesized link between enhanced supervisor supportiveness—an inducement—and better employee attitudes toward work—the contribution (Graen and Scandura, 1987). It is also consistent with LMX theory and findings suggesting that the quality of outcomes for subordinates—predicated on inducements from the supervisor—depends on interpersonal agreement and affectation (Liden and Graen, 1980), at least at higher levels of agreement. However, the concavity of this relation changes to convexity for the dependent measure attitudes² in which subordinates evaluate their own attitudes toward managing work and child-care responsibilities. While subordinates' report

optimal attitudes at high levels of supervisor supportiveness congruence, extremely incongruent dyads are also associated with above average subordinate attitudes, and the poorest attitudes are reported for dyads in which supervisors' rate their supportiveness as average and subordinates' rate supervisor supportiveness as minimal. These surface response differences are important because they indicate that the perceptual congruence process varies depending on whose attitudinal perceptions are being assessed. That is, when supervisors see themselves as very supportive of their subordinates' child-care problems, even though their subordinates disagree, these leaders also believe that subordinates' attitudes toward managing work and child-care responsibilities are, at a minimum, satisfactory. Indeed, this is a logical extension of perceptions determined by supervisors' high self-evaluations. Yet, subordinates' judge their own attitudes as favorable even as they perceive their immediate superior to be very unsupportive. Clearly, supervisors' are misjudging the extent of their support for their employees' work and child-care conflicts.¹ This result probably has genuine consequences for subordinates in this sample. In

¹Note that attempting to balance these extremely subjective perceptions through an averaged view of attitudes can not illuminate "true" relations because objective truth is incalculable in this case; hence, the regression of attitudes³ on the supportiveness polynomials is not interpreted.

dyads in which supervisors rate themselves above average in supportiveness, but their subordinates rate them below average, subordinates receive below average performance and attitudinal ratings, and report above average levels of child-care generated absenteeism.

The final main effects results for views of supervisor supportiveness as a predictor of subordinates' child-care related absenteeism were all nonsignificant, including both difference scores and polynomial regressors. The absence of this relationship is puzzling given several empirical findings that supervisor supportiveness is linked to reduced absenteeism (McShane, 1983; Brooke and Price, 1989). One explanation is that congruent perceptions of supervisor supportiveness might describe a merely cognitive agreement without practical implications or implementation. Graen and Scandura (1987) recognized that in order for the supervisor-subordinate exchange relationship to function efficiently, the supervisor must possess sufficient positional and personal power to effect an inducement-contribution exchange. Since there is no evidence in this sample to suggest that supervisors were afforded the authority to grant subordinates' ad hoc child-care accommodations at the workplace, it can be conjectured that a lack of this critical power-base crippled supervisory discretion. Hence, this specific exchange was not consummated in a

pragmatic way, and the expected relation between congruent views of supportiveness and subordinates' absenteeism never developed. As well, most employees in the sample reported that they used a network of child-care resources. Indeed, the mean absenteeism level is quite low at 1.92—indicating that on average employees rarely experience child-care generated attendance problems—and with a standard deviation of .796, about 84% report less than occasional absence problems related to child-care exigencies. Hence, it appears that minimal attendance problems based on child-care considerations characterize these employees, and multiple arrangements may limit the efficacy of supervisory supportiveness.

Views of Subordinates' Attitudes toward Managing Work/Child-Care Responsibilities and Outcomes

The main effects relation between subordinates' attitudes toward managing work and child-care conflicts, and subordinate performance is intriguing (Table 7; Figure 8). Statistically, in none of the models do difference scores more accurately reflect functional form than the polynomial set. Interpretively, it is demonstrated that where either supervisors or subordinates rate the subordinate's attitudes as high, subordinates' are also given an above average performance rating. Of course, the response surface shows that the best performance ratings are extended where both dyad members perceive the subordinate to possess

optimal attitudes, and diminish most precipitously where both parties jointly agree that the subordinates' attitudes are severely problematic. Importantly, it is not clear why supervisors give above average performance ratings even when they view the subordinate as holding the poorest attitudes toward the balancing of work and child-care. A breakdown of the data shows that despite perceived negative attitudes, supervisors provide these subordinates, on average, more extensive support for work and child-care problems, and believe them to experience much reduced absenteeism from child-care conflicts. It is suspected, here, that supervisors' are making performance appraisals on the basis of other related perceptual stimuli. To test this hypothesis, an additional regression was performed adding the supervisor support polynomial set and the absenteeism polynomial set as controls in separate blocks. The results showed that the supervisor support variables contributed an increment of 6.9 percentage points to R^2 , $.05 < p < .01$. However, the linear supervisor variable for supportiveness was the only significant regressor, and its influence on the attitudinal-performance relation was minimal; the response surface tilts down slightly from the eastern corner and the slope becomes moderately steeper in the northwest to southeasterly direction. In other words, the supportiveness perceptual process does not substantially alter

the relationship, notwithstanding potential interaction effects. Similarly, the relation between subordinates' attitudes and performance² provides no insights, as it merely flattens the performance¹ relationship a little (as the averaged performance³ DV regression indicates). Overall, the notion that "congruent perceptions of another person's work-related attitudes is a positively reinforcing experience" (Wexley and Pulakos, 1983) does not describe the interpersonal dynamics in this sample.

The next regressions of superiors' views of subordinates' absenteeism on views of dyadic subordinate attitudes yielded divergent, although explicable results. Clearly, the polynomial set is powerfully superior to difference scores as regressors, according to the F-tests (Table 8). Nonetheless, as Figures 10 and 11 display, the response surface for the absenteeism¹ DV is characterized by a negative slope while the response surface for the absenteeism² DV is characterized by a positive slope, moving from the northwest to the southeast corners of the graphs. This suggests that supervisors are not interpreting subordinates' perceptions accurately. That is, where supervisors' assess subordinates' attitudes as above average, they correspondingly perceive subordinates' child-care related absenteeism to be moderate. However, supervisors' perceive subordinates who rank themselves high on favorable attitudes to be

encumbered with elevated levels of child-care absenteeism problems, compared to the reports of very limited absenteeism difficulties by subordinates in Figure 11. Moreover, congruent perceptions of subordinates' attitudes at optimal levels are associated with the most egregious absenteeism generated by child-care conflicts. It is not controversial to assert here that polynomial regression presents a fairly clear picture of interpersonal misperception compared to difference score regression. In effect, the significant difference scores in Table 8 show both positive and negative relations between differences in dyadic scores and absenteeism1, while the algebraic difference score predicting absenteeism2 is positive. Hence, the results are ambiguous, and consistent insight into and interpretation of the relationships described by the polynomial set cannot be derived. Finally, note that attempting to interpret the attitudinal prediction of absenteeism3 would be spurious since it balances the opposite effects of distinctly converse processes.

Views of Subordinates' Child-Care Generated Absenteeism Problems and Outcomes

Table 9 indicates that dyadic views of subordinates' absenteeism significantly predict subordinate performance1, performance2 and performance3. Note, however, that the absenteeism polynomials are not better predictors than the algebraic and the sum of algebraic difference

scores with respect to performance¹. Given the 3 nonsignificant F-tests, and the consistently negative slope coefficients across all the difference scores, it appears that an inverse linear, two-dimensional relation most efficiently describes the absenteeism-performance¹ linkage. The meaning is straightforward: as the difference between dyadic perceptions of subordinates' child-care absenteeism becomes smaller, supervisors rate their subordinates' performance higher. An analogous result obtains for views of absenteeism and subordinate performance². The sum of absolute differences and the sum of squared differences imply an inverse linear fit that is mathematically superior to the polynomial set, given the marginally significant R^2 of the latter and the marginally significant difference in the adjusted R^2 's F-test. Finally, the significant rejection of all difference score estimates in the last model, where the dependent measure is the average of the performance variables, has little probative value given the flat surface in Figure 12. In short, these findings are not supportive of the superiority of polynomial regression. Yet, they do conform to the theoretical view that as supervisors become more attentive to work-family problems, subordinates' absenteeism is ameliorated (Steers and Rhodes, 1978), and dissipating psychosocial influences on performance are reduced (Graen and Schieman, 1978).

Conclusion: Main Effects and Perceptual Congruence

This section has illuminated the relationships between perceptual congruence measures and individual outcomes. Analogous to Edwards' statistical findings (1993a; 1993b; 1994; 1995), difference scores, with their implicit constraints on functional form, have been persistently outperformed as regressors by their associated polynomial sets. This marks perhaps the most comprehensive evidence in the empirical congruence literature to buttress Edwards' assertions that polynomial regression should replace the use of difference scores in analyzing models in which fit or match is central to theorization. Secondly, it is clear that the congruence relationship between perceptual independent and dependent measures is not symmetrical as frequently presumed and modeled in the literature (Edwards 1991; 1996). The response surfaces graphed from polynomial coefficients show that perceptual congruence tends to generate favorable outcomes only where congruence occurs at high positive levels for supervisors and subordinates jointly. Thus, agreement by both parties that supervisor supportiveness, subordinates' attitudes, and subordinates' absenteeism are problematic does not generally predispose employees to positive outcomes. Thirdly, the graphical evidence suggests that frequently—subordinate performance by views of supervisor

supportiveness and subordinates' absenteeism by views of subordinates' attitudes—supervisors are not accurately perceiving their influence on subordinates' work and child-care related problems. It has been shown that (1) supervisors overestimate their supportiveness for subordinates' child-care interruptions at the workplace and (2) supervisors are generally mistaken in their perceptions of subordinates' attitudes toward managing work and child-care responsibilities. The consequence seems to be erroneous evaluations of many employees.

B. Interpreting Main Effects: Actual Similarity and Dependent Measures

Dyadic Educational Similarity and Outcomes

Tables 10-12 display the statistical estimates for the relationships between educational similarity and subordinate performance, attitudes and absenteeism. Given these calculations, it is not controversial to argue that the polynomial education set is overwhelmingly superior to the 3 difference scores as predictors of the aforementioned dependent measures, where the polynomials are significant as a set. Interestingly, the congruence assumption that similarity engenders favorable outcomes is not uniformly confirmed.

The response surfaces associated with all 3 subordinate performance regressions indicate that both supervisors and subordinates identify a

similar process linking education similarity and performance ratings. This relation conforms to a puzzling incongruent form: along the $Y_1 = Y_2$ line of perfect fit, where supervisors and subordinates possess identical levels of education, subordinate performance ratings reach a maximum that is below the mean, and diminish even farther at the extreme corners of perfect similarity. The interpretation is that at very high and very low levels of dyadic educational similarity, both supervisors and subordinates rate subordinates' performance as poor. This relationship challenges Tsui and O'Reilly's (1989) finding that dyads with educational similarity are not associated with performance ratings; it also diverges from their discovery of reduced role ambiguity for subordinates, which would indirectly be expected to improve performance. Overall, a cogent explanation of this outcome is elusive. It may be that the clarification of work roles reported by Tsui and O'Reilly (1989) is offset by the decrease in supervisor affectation for subordinates with similar education also reported by these researchers. As well, the inclusion of perceptual and objective covariates of education in an extended regression did not significantly alter the magnitude or direction of prediction for educational similarity polynomials, suggesting no statistical confounding of the dependent relation with performance. In sum, it must be postulated that supervisors and

subordinates with dissimilar levels of education, particularly at very high and low levels, develop an appreciation of the other's educational achievements which generates improved subordinate performance. Further, it is not irrational to speculate that dyads at the highest convergence of education, i.e. Ph.D.s, may engage in intellectual combat over work issues, while supervisors in dyads at the lowest joint levels judge poorly subordinates quite harshly.

The relation of dyadic educational levels and subordinates' attitudes toward managing work and child-care responsibilities more closely coincides with the notion that differences in dyadic educational attainments are associated with divergences in beliefs and values (March and Simon, 1958; Zalesney and Kirsch, 1989). Figure 19 depicts a strong relation between educational similarity and rising evaluations of subordinates' attitudes. While this may be explained as a "meeting of the minds" and communication compatibility between similar individuals (Tsui et al., 1994; Tsui and O'Reilly, 1989), an alternative supposition is illuminating. That is, given that income and education are strongly and positively correlated (Ehrenberg and Smith, 1996), it is reasonable to conjecture that subordinates with advanced education possess the pecuniary means to eliminate most child-care problems. It follows that their attitudes toward

managing work and child-care responsibilities should be positive, and that supervisors apparently recognize these optimistic perspectives. Moreover, the influence of pecuniary power may also explain the high attitudinal ratings of poorly educated subordinates by the most highly educated supervisors; in light of their limited problems, the latter cannot effectively perceive that less educated and therefore less affluent subordinates are not satisfied with their arrangements for managing work and child-care. Correspondingly, dyads at the lowest levels of educational congruence may be associated with the most depressed assessments of subordinates' attitudes on the basis of monetary considerations as well. However, in this case, a breakdown of the data indicated that 62% of supervisors at the lower echelons of education do not have children under 18. Indeed, this situation is a clear impediment to the interpersonal empathy and communication that would characterize dyads facing the same child-care problems where supervisors facilitate favorable subordinate attitudes toward managing work and child-care. Finally, note that attitudes₃ is not evaluated as a dependent measure because of the interpretative difficulties associated with averaged subjective perceptions. Also note that polynomials are again more robust predictors than difference scores.

Table 12 shows that neither difference scores nor polynomial regressors for educational similarity were strong predictors of subordinates' child-care related absenteeism. This result is consistent with the absence literature, which has not theorized a connection (Steers and Rhodes, 1978) or found a consistent pattern (Spencer and Steers, 1980) between education and absenteeism. No further discussion is warranted.

Dyadic Organizational Tenure Similarity and Outcomes

The functional relationship between organizational tenure similarity and subordinate performance is best captured in Figure 21, in view of the preference in this study for supervisors' ostensibly more objective ratings of subordinate performance. To begin, Table 13 demonstrates that all linear two-dimensional functional forms based on difference score regressions are inferior to the predictive robustness of the polynomial set. Nevertheless, the response surface in Figure 21 is not susceptible to straightforward, unambiguous interpretation. It is not the case that dyadic organizational tenure dissimilarity leads to unfavorable performance ratings for subordinates, pursuant to research showing that younger, less tenured supervisors give poorer performance appraisals to older, more tenured subordinates, and that long-tenured supervisors favor long-tenured subordinates (Cleveland and Landy, 1981). The response surface

demonstrates that supervisors with approximately average tenure routinely evaluate subordinates of all tenure levels as below average performers. Since the only significant coefficient in the polynomial set is the cross-product term, this relationship can more simply be understood as a moderated one. In essence, the level of supervisor tenure moderates the relation between subordinates' tenure and performance ratings such that departing from the mean level of tenure in either a westerly or easterly direction, performance ratings increase for subordinates. In an attempt to understand the source of this peculiar relationship, a gender contrast was entered in the equation as a control variable. This F/F vs. others dummy was significant and partialled variance explanation from the interaction so that it was no longer significant. This suggests that a disproportionate number of these same sex dyads account for the low subordinate performance ratings submitted by supervisors, particularly given the negative relation between female-female dyad membership and subordinate performance. In fact, it was discovered that 67% of the female-female dyads fell within one standard deviation of the mean of supervisors' organizational tenure, and this is the likely source of the tenure-performance relationship.

In the next set of models, dyadic organizational tenure similarity is not predictive of subordinates' attitudes toward managing work and child-care responsibilities. On reflection, tenure similarity is expected to be associated with favorable employee attitudes generally at lower levels of tenure, where younger dyad members are more likely to share perceptions of child-care difficulties. Such a result was not found. In fact, there was no correlational association between tenure and attitudes for either party, respectively, nor was there any significant correlation across these variables based on dyadic position. Moreover, the significant prediction of the difference scores for attitudes³ should not be given much weight because of the measurement problems associated with averaging attitudes. Perhaps the most credible explanation for the absence of any linkage turns on a previously implied supposition: actual similarity—tenure similarity here—will influence child-care related attitudes primarily when both parties are coping with work and child-care management. A separate analysis, however, failed to substantiate this assertion, as a three-way interaction between dyadic tenure levels and a dummy variable indicating that both parties have children was not significant. In short, it is not determinative that tenure differences in dyads lead to the communication incompatibility (March and Simon, 1958) and suppression of supervisor

affect for the subordinate (Tsui and O'Reilly, 1989) anticipated by researchers based on the results from this sample.

The last set of main effects dependent measures regressed on dyadic organizational tenure consists of the subordinates' child-care generated absenteeism constructs. Inasmuch as longer tenured employees tend to show fewer chronic problems with absenteeism (Spencer and Steers, 1980; Garrison and Muchinsky, 1978), negative correlations were found between supervisors' and subordinates' tenure levels and their respective absence behaviors. However, empirical findings that tenure differences from the group are associated with increased individual absenteeism (Tsui et al., 1992) are completely reversed at high and low levels of tenure in this sample. Figure 23 demonstrates a convex surface, especially prominent along the $Y_1 = Y_2$ line, such that at increasingly high and low tenure similarity supervisors report strongly exacerbated subordinate problems with absenteeism. This relation may be predictable for subordinates with minimal tenure; but it does not seem reasonable for long-tenured employees who are expected to have larger incomes to more effectively cover the costs of various child-care exigencies. However, since wage and income data are not available this assertion remains hypothetical. A breakdown of the data by number of children shows that at levels above the

mean tenure for supervisors and subordinates, 63% of supervisors in dyads do not have children under 18 and do not currently deal with child-care issues in their homes. This raises the inference that in many of the dyads, supervisors are less empathetic to or perhaps less perceptive of their subordinates' child-care related absenteeism, particularly given an average age of 2.5 years for subordinates' youngest child in these dyads. As well, 70% of these subordinates are raising 2 or more children under 18. Consistent with Kossek's (1990) finding that diversity in child-care profiles generates higher rates of care difficulties, it is likely that these factors collectively produce the increased absenteeism problems evident in this sample despite dyadic tenure similarity at higher levels of tenure.

Note, finally, that for absenteeism2, subordinates' reports of their absenteeism generate similar, although nonsignificant, regression coefficients compared to the absenteeism1 statistical results. While the difference scores are better than the polynomial set as predictors for absenteeism2, the similarity of the polynomial set across models and the strong superiority of these polynomials in model 1 suggest that polynomial regression is preferable to difference score regression in this case.

Dyadic Position Tenure Similarity and Outcomes

Tables 16-18 present the statistical results for the relationships between dyadic position tenure similarity and outcomes. It is obvious from these results that position tenure of supervisor and subordinate are not jointly predictive of subordinate performance. That is, the position tenure polynomials are not a meaningful regressors, and the algebraic difference score is only marginally significant for performance₂ and performance₃; importantly these difference scores become nonsignificant when mean substitution is withdrawn and sample size drops. Nor are the position tenure polynomials predictive of subordinates' attitudes toward managing work and child-care responsibilities across any of these dependent measures, while the algebraic score is a significant predictor for attitudes₂. However, the sign of the difference score is not in the correct theoretical direction as dyadic members spending more time together are expected to develop more precise interpersonal understanding (Graen and Scandura, 1987). Indeed, the absence of a structural relationship for these variables is troublesome in light of VDL findings that 3 tiers of quality in subordinate performance, attitudes and other attributes should obtain where dyadic relations, as here, have had sufficient time to mature (Cashman and Graen, 1975; Graen and Schiemann, 1978; Liden and Graen, 1980; Liden et al.,

1993). After considering other explanations, it is speculated again that position tenure similarity involves a protracted dyadic relationship in which child-care issues influencing performance and attitudes are difficult to capture without longitudinal process-based data.

Conversely, the position tenure polynomial set is a significant predictor of absenteeism, and is superior to all forms of difference scores tested. Figure 27 depicts an unusual relation: both dyadic tenure similarity and dissimilarity are associated with exacerbated levels of subordinates' child-care generated absenteeism. It is reiterated that similarity in position tenure is apparently not connected to changes in a dynamic perceptual variable—absenteeism perceived to be caused by exigencies in subordinates' child-care.

Gender Similarity and Outcomes

In general, the gender similarity analysis is encumbered by the homogeneity of the sample, which includes only 6 male subordinates. Moreover, inherently nominal variables are not amenable to Edwards' (1993a) polynomial regression, so that simple categorical contrasts were used to analyze main effects results. Despite these limitations, the results do indicate that relative to male subordinates, dyads with female subordinates are inversely related to subordinate performance and attitudes,

as found repeatedly in the empirical literature. Thus, the anticipated enhancement of females' child-care influenced performance, attitudes and absenteeism where female subordinates are matched with female supervisors was not found. In every instance, females in homogeneous dyads experienced reduced performance and attitudes encompassing work and child-care conflicts (see Table 19). This outcome cannot be attributed to the absence of children in supervisors' homes since 78% of female supervisors have children under 18. While subordinates in same-sex dyads have been found to experience less role ambiguity, less role conflict (Tsui and O'Reilly, 1989) and increased job satisfaction (Green et al., 1996) than subordinates in mixed-gender dyads, the empathetic relationship between female supervisors and subordinates predicted to ameliorate work and family management for women does not appear to develop in this sample. One reason for this finding may be that excessive spillover from child-care to the workplace continues to plague females despite supportive, attentive, and child-care experienced female supervisors. Secondly, it has been argued that women's recent ascendancy into managerial positions accounts for some confusion in their performance and role expectations for female subordinates (Wexley and Pulakos, 1983). This condition might obtain in a general sense. However, because this sample is comprised primarily of

nurses whose responsibilities are quite unambiguous, it seems illusory to propose that female supervisors are confused about subordinates' required work behaviors, regardless of gender. Overall, this research does not support the notion that same-sex dyads are cathartic for female employees.

V. Implications for Management, Labor and Social Policy

Management

The findings in this analysis are not amenable to extensive recommendations to management for improving supervisor and subordinate relations in view of the absence of perceptual congruence mediation effects between actual similarity and subordinates' outcomes, and unanticipated main effects findings. However, several ideas do emerge. First, implicit evidence surfaced suggesting that supervisors may not accurately perceive employees' various difficulties with work and child-care conflicts. Divergence in dyadic understanding of child-care related attitudes and absenteeism, and particularly the disagreement about supervisor supportiveness, mandates that an intervention be initiated to sharpen supervisors' cognitive grasp of subordinates' problems. If organizations are to genuinely engage in a productive ecosystem with workers and optimize performance, it essential that manageable disturbances between work and family be addressed. Hence, it is

recommended that work-family integration training be instituted for supervisors. In particular, this type of training must emphasize a proactive approach by supervisors such that they become more responsible for investigating potential and suspected child-care difficulties of employees. This is predicated on the notion that employees are often reluctant to expose nonwork vicissitudes, fearing nefarious attributions by their superiors about organizational commitment. Moreover, given the substantial proportion of supervisors not dealing with child-care exigencies in this sample, it seems even more critical that this class of supervisors be trained to explore and be empathetic to subordinates' child-care pressures since it is likely that such attentiveness is absent for supervisors without dependent children.

Secondly, it is prudent that supervisors be trained in processes of integrative negotiating (Fisher and Ury, 1985) in order to establish the optimal functional relationship between employees' work lives and their family responsibilities. This suggestion is derived from the evolving educational improvement in a workforce that expects to be treated with respect by employers. Importantly, dyadic negotiations become vacant where upper management is not committed to a family-responsive policy and supervisors are not given sufficient latitude to authorize alternatives for

stressed subordinates (see Graen and Scandura, 1987). This means that from the upper echelons such a policy is genuinely supported and can be effectively implemented.

Thirdly, it is recommended that management strenuously evaluate both the scope of employees' work and child-care problems, and the efficacy of the programs conceived to assuage them. These steps are essential considering that organizations are notoriously lax in evaluating most change interventions and therefore cannot accurately describe their effectiveness. It is imperative here that child-care policy not develop into another "feel good" management initiative that generates useless costs and fuels destructive employee resentment. Indeed, a strategy to link this policy to bottom-line costs is warranted.

In a different vein, this research suggests a fourth implication for management that encompasses gender differentiation. For reasons not fully understood, the results of this analysis demonstrate that individuals in homogeneous female dyads do not experience the empathetic relationships and favorable outcomes expected in the congruence assumption (Lawrence, 1997). As Table 19 indicates, female-female dyads are associated with diminished subordinate outcomes relative to all other dyads in every statistical test. While this finding requires additional empirical

substantiation, such an outcome suggests that management needs to consider employing a mentoring program, perhaps matching female supervisors with more seasoned male supervisors. The notion of cross-gender mentoring is predicated on the reality that female supervisors do not generally have an abundance of organizational role-models from which to derive experience-based information for effective managing of subordinates. Indeed, given that these findings were taken from a very gender and occupation homogeneous sample where females probably experience more mentoring opportunities from other female supervisors than in a more heterogeneous sample, comprehensive attention to female managers' difficulties seems especially imperative. Of course, where cross-gender mentoring is employed, it may also be essential to implement diversity training to ensure that both parties are psychologically comfortable in the relationship.

The broader issue of the efficacy of endorsing diversity in the organization is a fifth implication for management derived from this analysis. The finding in a number of instances that demographic diversity in dyads is associated with favorable outcomes for subordinates is an unexpected result. In fact, a driving assumption of this research was that dyadic dissimilarity in demographics would be predictive of exacerbated

work-family problems for subordinates, given the proposed theories of the homogeneity tendency in organizations (Schneider, 1983; Pfeffer, 1983; Byrne, 1971; Tsui and O'Reilly, 1989). In contrast, the recurrent support for diversity-based outcomes in this sample is difficult to ignore. While this link may be partially due to the effect of tenure longevity of the subjects, it does seem prudent that management further explore the psychosocial and performance potential of mixing demographics in dyads and groups. This could be evaluated by pairing newcomers with more than one mentor so that the developing employee is ensured the opportunity of interacting with a wider ranging demographic mix in supervisors. Survey analysis is essential to measure the valued-added of such a strategy.

Labor

Although organizational policy regarding work and child-care integration, at first glance, appears to encompass traditional management prerogative (Elkouri and Elkouri, 1985), such an important issue must be placed under the purview of collective bargaining efforts. That is, such a ubiquitous concern would likely engender a great deal of political energy so that a large percentage of union constituencies are expected to seek more favorable contractual treatment of child-care problems. This may entail the provision for on-site care or other management subsidized arrangements. A

union initiative, at the least, should seek to institute survey research as a fundamental step in the process of identifying child-care problems that can be addressed by both union and management, because it has been shown for this sample that supervisors and subordinates are not connecting on extant work and child-care conflicts. Subsequent negotiation would involve the contractualization of specific ameliorative steps to assist workers in minimizing child-care interferences on the job. Of course, these would be contingent on the circumstances of workplace and organizational demands.

Social Policy

The discovery of dyadic misperception in understanding employees' work and child-care problems warrants a major governmental initiative. This is the need for sufficient funding to study the nexus of perceptual congruence and actual similarity, as both interact to influence child-care related outcomes for employees that can undermine organizational performance. While the model and findings in this research constitute a beginning point for scientific investigation, parts of the model or alternative models are certainly also amenable to grant money. It is strongly recommended here that longitudinal analysis be given priority because of the nonrecursive nature of work and family, and dyadic, interactions. As a second prong of fundable research, subsequent to the

illumination of the structural networks through which these processes flow, is determining the efficacy of alternative interventions, i.e. employee training, and evaluations of these approaches. Thirdly, it seems essential that government funding be channeled to projects seeking to establish the pecuniary and related health benefits of interventions. The next section describes a research agenda that is also worthy of government subsidization.

VI. Dissertation Contributions, Limitations and Suggested Research

Contributions

This dissertation has extended congruence research in several creditable ways. Most importantly, the analysis constitutes an effort, albeit inchoate and exploratory, to make tangible the psychosocial processes in the black box of organizational demography heretofore unexamined by congruence researchers. Even though a meaningful intervention by perceptual congruence was not revealed, and the latent process or processes linking actual similarity and individual outcomes remain primarily speculative, the general mediation model lays a foundation for further investigations. That is, it has been realized that analyzing congruence measures that are different in temporal and stability characteristics in a

cross-sectional research context will generally fail to reveal structural relations. In other words, judgements about specific workplace issues such as subordinates' child-care problems are probably too ephemeral and too volatile to be effective mediators of immutable demographic similarity measures because they interact intermittently and nonrecursively in broader structural networks. Hence, this calls for an infusion of more permanent and stable measures of psychosocial congruence, e.g. general perceived similarity (Turban and Jones, 1988), in congruence models.

Secondly, the study contributes a seminal integration of the theoretical and empirical literature exploring supervisor and subordinate dyadic relations. The result has been the distillation of substantive and processual precepts from the VDL (Graen and Cashman, 1975), Role Episode (Katz and Kahn, 1978), Dyadic Organizing (Graen and Scandura, 1987) and similarity (Turban and Jones, 1988) models and empiricism. Importantly, this incipient integration should constitute the point of departure for continued theory building and empiricism on the interpersonal dynamics characterizing the supervisor-subordinate dyad. In fact, the general model presented in this research develops a unique niche for the examination of interpersonal congruence under the rubric of person-environment fit. This was essential in advancing a theoretical

understanding of supervisor and subordinate dyadic relationships in organizations because even the most recent and accomplished person-environment fit conceptualization has ignored this most fundamental interrelationship. Particularly, the outstanding Kristof (1996) research into person-organization fit regrettably discarded dyadic interaction as having developed an independent, and apparently disconnected, literature. It seems an egregious transgression to exclude the subordinates' dependence on and reciprocity with their supervisors from person-organization fit theory, given that the supervisor is unarguably the cornerstone of intra-organizational relationships. Indeed, the demands-abilities and supplies-values tradeoffs between person and organization do not seem conceptually incompatible with Graen and Scandura's (1987) supervisor-subordinate exchange network; supervisors' inducements and subordinates' contributions fit comfortably under these higher-level exchanges. While future conceptualization may find these person-organization theories adequately adaptable to dyadic models, the nomenclature is for now extended with new terms that add excessive clutter to the congruence field.

Thirdly, the methodological approach of analyzing congruence relations across multiple measures of congruence using polynomial and multivariate regression marks a significant innovation in congruence

analysis. While this methodology requires supplementary testing and refinement, it appears capable, *prima facie*, of generally supplanting the utilization of difference scores as independent and dependent variables. This alteration in current methods practice will necessitate the development of a more thorough understanding of sequential congruence analyses where multivariate regression precedes evaluation of dependent measures via Edwards' (1995) simultaneous equation estimation.

Fourthly, this work buttresses the salient principle fueling Edwards' (1993a; 1993b; 1994; 1995) seminal research in polynomial regression. As is explicit throughout his work, the clarification of the three-dimensional functional forms underlying most congruence relationships is manifest in this study. In only a few instances are the two-dimensionally anchored difference scores better predictors of individual outcomes than their expanded sets of polynomial regressors. This is persuasive reinforcement for proper model specification in organizational research where correct delineation of "true" curvilinear relationships adds immensely to the evincing of latent interpersonal processes. Certainly, the knowledge that congruence and similarity phenomena in dyads are not primarily symmetrical, or constant processes or predictors, should radically change the viewpoint of researchers in this area. More importantly, it will facilitate

a more accurate evaluation of disturbances and dysfunction between supervisor and subordinate, and ultimately enhance the omnipotent “bottom line” in organizations.

Finally, this research contributes modestly to the understanding of workplace and child-care dynamics. One inference, made cautiously, is that supervisory supportiveness for subordinates’ child-care difficulties may disintegrate where supervisors have never experienced parenthood or no longer care for dependents. This assertion is derived from the notion that supervisors not coping with immediate child-care and work conflicts may lose empathy for or underestimate subordinates’ problems with child-care management. In addition, this study shows that same-sex female dyads do not facilitate more favorable work outcomes for female subordinates’ with children. While it is possible that these less favorable outcomes were generated by a greater precision in interpersonal perceptions between dyadic members and therefore more accurate survey responses, it is also possible that gender similarity alone does not ameliorate child-care pressures. Perhaps other similarity factors—both perceptual and demographic—are involved in a broader structural nexus that determines the suppression of work and child-care dysfunction.

Limitations

As in most social science empiricism, this analysis is afflicted with a number of methodological ailments that render results and subsequent interpretations less than pristine. One of most glaring weaknesses of this analysis is the limited size and the extant homogeneity of the sample. It is well established that statistical power diminishes proportionally with sample size and in this study where $n \approx 180$, an R^2 effect size of .05 can be detected with a power of .75. This means that in 25% of cases where the variance explained by regression is .05, this index will be found nonsignificant on the basis of pure chance. In an exploratory analysis assessing psychosocial constructs, as this one, such a limitation causes important relationships to be missed. Furthermore, the demographic homogeneity of the sample is very likely to suppress the variance in constructs that would exist in a truly random sample of subjects. Thus, compressed variance probably masks structural networks that would be generalizable to other organizational contexts with larger, more heterogeneous samples.

A limitation corollary to attenuation of statistical power and the failure to illuminate significant relationships is the likely restriction in data range of the measures in this study. Given that the general model derives

from the stable, role routinization phase of Graen and Scandura's dyadic organizing model, in which supervisors and subordinates have been involved in dyadic interactions for a protracted period—organizational and position tenures are reasonably high—it is probable that the most dysfunctional relationships have already culminated in exit behavior. Hence, the range of relationship quality for remaining dyads is compressed and subject responses are expected to be restricted. Secondly, the tendency to psychological and demographic homogeneity predicted by Schneider (1983), and Pfeffer (1983) and Tsui et al. (1989; 1992; 1994) is also expected to produce a restriction in the range of the measure responses. That is, the fairly long tenure of supervisors and subordinates implies that homogeneity has—to a significant extent—emerged in this sample. The homogeneous demographics of the subordinate sample along with employees' similar training, work responsibilities and required work skills in a predominantly nursing-based workforce a priori suggests a nonrandom, constrained sample of survey instrument outcomes. Thus, the limiting theoretical boundaries for the general model, and the limited psychological and demographic diversity of the sample, inherently impose a restriction in range on the entire analysis.

Indeed, the influence of the restriction of range affliction poses serious statistical difficulties. In particular, artificial restriction of the range of data responses is known to attenuate correlation coefficients (Cohen and Cohen, 1983; Shavelson, 1988). Although this condition does not affect regression coefficients under homoscedasticity and linearity (Cohen and Cohen, 1983), it is likely to distort these coefficients in an analysis in which curvilinear response surfaces are estimated, as here. In sum, "it is quite possible that restriction of range in either $[X_j, Y_j, Z_j,$ or some combination], may occur as an incidental by-product of the sampling procedure" (Cohen and Cohen, 1983, p. 71) as in this research. Clearly, the sample is taken after dyadic roles have become entrenched and the most dissimilar hires have departed, and it is inherently homogeneous in psychological and demographic makeup of employees.

Associated with sample size insufficiency, is the utilization of mean substitution for organizational and position tenure regressors. While this technique for artificially enlarging a sample of data has a history of controversy, its acceptable application is limited to adding no more than 20% to a sample. In this analysis, several of the models examining tenure similarity exceeded this threshold by as much as 6 percentage points. The decision to do this was justified by comparing duplicate analyses without

mean substitution; they convincingly supported the significant results of the large sample. However, it is recognized that in nonexploratory work, expanding a sample beyond the allotted threshold would be scientifically suspect. Secondly, regression models were estimated in an ad hoc fashion rather than including postulated relevant variables in the respective regressions. While this was done in part because the relations between the various congruence/similarity constructs are not empirically known, it was also a strategy to cope with an insufficient n , potentially insufficient degrees of freedom, and an inflated standard error. In sum, the danger of misspecification increased with the omission of important regressors in the analysis.

An equally distressing shortcoming in this work is the temporal and stability distinctions between demographic and perceptual measures surfaced earlier. This divergence in measurement strategy—analogue to the commensurate measurement issue raised by Edwards (1991) and Kristof (1996)—is a strongly suspected source of analytical failure in the proposed mediation models. The problem was not recognized until the interpretation phase of the study, when it was reasoned that contiguous placement of static and erratic variables in a dynamic structural model seeks to match conceptually and functionally incompatible indicators. In

hindsight, it seems essential that more permanent perceptual congruence measures be implemented in cross-sectional research involving demographics to maintain theoretically commensurate constructs.

Further, at least three important variables were inadvertently excluded or poorly measured in the survey instrument. Income data for employees is frequently a meaningful predictor and moderator of psychosocial processes. However, because it was not collected for supervisors or subordinates, it could not be tested as a moderator of actual similarity measures, as proposed in previous sections. As well, the measurement of organizational commitment was improvised, and well-established scales were ignored. The result was a crippling unreliability such that subordinates' organizational commitment was not significantly predicted by any of the important regressors and was consequently dropped from the analysis. Thirdly, and most critically, a measure assessing the length of time that each dyad has been in existence was not included in the survey instrument. This negligence is analytically inhibiting because it eschews evaluation of any stability factors in the dynamic processes involved in the model. While Liden et al. (1993), and Graen and Associates (1975; 1978; 1980; 1987), have demonstrated that dyadic interdependency quality is primarily generated in the first several weeks of dyadic

interaction, the longitudinal permanency and volatility of this interdependency has not been fully established. That is, it is conceivable that multiple extraneous forces can impede the fruitful collaboration of supervisor and subordinate—escalating substance abuse, illness, divorce, or economic downturn leading to downsizing fears—such that dyadic functional stability is not guaranteed. The result would be unanticipated tensions in the leader-member exchange relationship. Clearly, exploring the time of association in dyadic relationships constitutes a potentially illuminating independent factor in dyadic congruence research.

The development and final form of the general hypotheses also presents some difficulties for the analysis. Edwards (1993; 1996) has pointed out that more precise hypotheses are warranted in fit research given that quadratic and interactive changes in the two independent variables explain changes in the dependent measure. This adds curvilinear dimensions to the interpretation of the functional relationships, differentiating polynomial regression analysis from conventional multiple linear regression analysis in which the latter explores linearity only. Hence, hypotheses derived from congruence modeling should consider 3-dimensional changes across a response surface rather than simpler positive or negative linear changes. While this was not undertaken in this study on

the basis of exploratory investigation, the more general hypotheses employed rendered precise interpretation difficult. For example, where surfaces showed increasing levels of the dependent measure only at very high levels of the independent measures, it is not clear whether this finding supports a hypothesis of general congruence. It is also quite likely that depending on whether the dependent measures was derived from the supervisors' or the subordinate' perspectives, the latter outcome was primarily an artifact of common method variance. In short, more precise, detailed hypotheses are needed in subsequent studies to avoid "snaring" trivial or conflated findings by casting the analytical net too broadly.

As well, further reflection on the theoretical and empirical construction of the conceptual model surfaces an inadvertent faux pas. First, the early literature analyzing supervisor-subordinate relations, i.e. Wexley et al. (1980; 1983), is in fact seminal, important congruence research central to the suppositions offered here, and is not merely tangential, as was perhaps implied. Moreover, it also falls within the rubric of person-organization fit as conceived in this research. Specifically, the supervisor is a foundational component of the organization; effective fit between an employee and his/her supervisor constitutes a critical form of

person-organization fit, although at a lower level of analysis than that modeled by Kristof (1996).

Finally, from an analytical standpoint, the evaluation of response surfaces was predicated on “visual estimation” rather than sound, statistical assessment. Indeed, the essential formulas for estimating the significance of concavity, convexity, first and second principle axes, minimums, maximums, saddle points, and so on (Box and Draper, 1987) are available. Although these were not calculated here, it is strongly recommended that additional research make use of these informational tools. Secondly, a number of potentially moderating forces, e.g. supervisors’ number of children, were suggested to have important intervening effects on both perceptual congruence and actual similarity processes. Due to the difficulty in interpreting the multiple interactions encompassed in the moderation of polynomials, it was decided that these analyses extended beyond the scope of this dissertation. However, it is again recommended that the intricacies of such moderation be clarified so that polynomial set moderation can be incorporated into future research.

Research: Future Directions

The most salient need in dyadic congruence research is one typical of all organizational science research. That is, because the mediation model

is dynamic, with the operation of nonrecursive processes, it is imperative that a longitudinal analysis of these processes be undertaken. This will require a tested survey instrument or set of instruments to be administered intermittently across an appropriate time frame and in an appropriate organizational domain with a large number of respondents. Of course, the topical domain of such a study will determine the frequency of data collection and the overall time frame. In the case of subordinates' work and child-care difficulties, weekly or monthly over 1-2 years seems necessary to capture the fluctuations in child-care exigencies that characterize this phenomenon. More frequent data collection will minimize problems with employee retrospection. Additionally, workplace environments more heterogeneous in demographics and job responsibilities than in this study are essential.

In a more substantive direction, the three forms of similarity presented by Turban and Jones (1988) require further evaluation. While these authors provide empirical support for the distinction between perceptual congruence, perceived similarity, and actual similarity, their definitions seem to overlap phenomenologically and teleologically; hence, they are somewhat ambiguous and have not been effectively operationalized as constructs. The objectives of this research will be two-

fold: (1) to test the psychometric validity of the three similarity types; and (2) to develop and test improved measures of these similarity constructs.

Another fruitful avenue for research entails a direct assessment of the cognitive stereotyping process posited by Tsui et al. (1994) to be the latent intervening link explaining the relationship between actual similarity and individual outcomes. This stereotyping ostensibly induces premature classifications of dissimilar others on the basis of an individual's cognitive self-categorization and attachment to social identity groups. Of course, such research mandates the development and validation of the measurement of the cognitive process to ensure its psychometric distinctiveness. Subsequent to this task, the general framework of the mediation model from this analysis can be used to distinguish cognitive stereotyping from other perceptual similarity processes. In particular, with the sophistication of the general perceived similarity construct and reliable measurement of cognitive stereotyping, a duplication of the model in this study would be a significant contribution, especially in the area of child-care. Also in this research queue, other proposed intervening processes between demographic similarity and outcomes—such as communication frequency and compatibility (Tsui and O'Reilly, 1989), general interpersonal affectation (March and Simon, 1958), and values congruence

(Meglino, Ravlin and Adkins, 1989; 1992)—can be measured and tested as mediating or moderating forces.

In light of the recent frenetic efforts to encourage diversification in organizations' human resources, a related research effort encompasses the contrast of this ideological imperative with the inherent tendency to homogeneity in quality dyads, groups and organizations made explicit in multiple theories and empiricism (Schneider, 1983; 1995; Pfeffer, 1983; Byrne, 1971; Tsui and O'Reilly, 1989; Tsui et al., 1994; Jackson, et al., 1989). Indeed, given the realization that organizational homogeneity develops "naturally," and that this process is driven by psychosocial assimilation, the nomological boundaries of the nexus of effective assimilation and injurious diversity must be clarified. Certainly, individual employees incapable of satisfying the minimal necessary threshold of assimilation can not rationally be retained by an organization because maintaining human diversity at the expense of economic utility would likely be fatally dysfunctional. Therefore, the research objective here will be to contrast the behavioral dynamics of "similarity" theories with the functional utility of implementing diversity as a policy mandate. Distinguishing the contexts in which diversity "adds value" and contexts in

which it cannot will constitute a critical part of the analysis. Effective psychosocial assimilation interventions will also be explored.

With respect to child-care theory, the course of this dissertation analysis has surfaced a paucity of powerful analytical frameworks from which to examine work and child-care conflicts. Thus, pulling from both economic and organizational behavior theories, an integrated approach is suggested. Based on Becker's (1965) eminent household labor supply model, it can be posited that the quality of leader-member exchange relationships can favorably influence a subordinate's ability to allocate time to the organization. Graen and associates' (1975; 1978; 1980; 1987) VDL and dyadic organizing research indicates that supervisors evaluate and then categorize their subordinates into high, middle and low performing groups in which better performers are given preferential treatment in return for their superior contributions. Thus, subordinates in the high and middle quality dyads are extended more support for their work-family conflicts as an inducement for their continued good performance, such as voluntary overtime or time worked but not compensated. Of primary interest here is whether the inducements of a supervisor are sufficient to alter the slope of the subordinate's indifference curve, a tradeoff between work time and family time. As well, the three

quality-levels of dyads identified by Graen and his associates suggest that the average shapes of indifference curves for the three groups should be significantly different. Finally, pursuant to Becker's model, analogues to the income and substitution effects are tenable. The overall result will be an economic framework for understanding subordinates' work and family tradeoffs, influenced by organizational extrinsic rewards and the supportiveness of supervisors.

Finally, extensive additional research is required to validate the mediation methodology presented in this work. This entails controlled simulations to determine the robustness of the technique. As well, moderating influences should be further examined in the context of polynomial regression as recommended in previous paragraphs. This is especially important in psychosocial research where a multitude of variables can be conceived as potential intervening influences between dependent and independent measures. Indeed, it is recommended that further study in work and child-care congruence research examine the postulated moderation of immediate family dependent care needs between perceptual congruence and actual similarity.

APPENDICES

APPENDIX A

EVALUATING R^2 SIGNIFICANCE, AND DIFFERENCES BETWEEN POLYNOMIAL SETS AND DIFFERENCE SCORES

In this study, the issue of implied constraints in difference scores is critical because where these constraints are not recognized and corrected, the determination of the significance of R^2 and the significance of differences between R^2 s can be distorted. First, consider the following difference score and its expanded form:

$$Z = b_0 + b_1(X_1 - X_2)^2 \quad \equiv \quad Z = b_0 + b_1X_1^2 - 2b_1X_1X_2 + b_1X_2^2.$$

It should be apparent that regressing Z on these two equations will not generally yield the same coefficients, standard and adjusted R^2 s, and F -statistics of significance. Primarily, this is because there are implicit constraints on the first equation such that the number of regressors are $k = 1$ for the squared difference score and $k = 3$ for its quadratic expansion. Thus, the significance of standard R^2 is not the same for both equations, even as R^2 is the same. To illustrate, suppose the first equation yields $R^2 =$

.025, $n=200$, while the second also yields $R^2 = .025$. Given the formula for the F-test of standard R^2 and calculating the adjustments:

$$F = \frac{R^2(n - k - 1)}{(1 - R^2)k}$$

(see Cohen and Cohen, 1983) gives $F_1 (1,198) = 5.077 > F_{\text{critical}} (3.04, p < .05)$ while $F_2 (3,196) = 1.675 < F_{\text{critical}} (2.65, p < .05)$. Hence, F_1 indicates that the R^2 for the difference scores equations is significant, while F_2 indicates that the R^2 for the expanded equation is not significant, even though both are mathematically equivalent. This distorting effect suggests that an uncorrected F-test on R^2 is misleading when assessing the predictive power of difference scores.

As well, the adjusted R^2 will be afflicted with a similar distortion.

$$R^{2*} = 1 - (1 - R^2) [(n - 1)/(n - k - 1)]$$

(see Cohen and Cohen, 1983) gives $R_1^{2*} = .020$ and $R_2^{2*} = .010$ even though the original equations are mathematically equivalent.

Finally, testing for a significant difference between pairs of standard R^2 s and pairs of adjusted R^2 s, respectively, across difference

scores and their expanded forms, can be deceptive. Consider the constrained and unconstrained cases where

$$Z = b_0 + b_1(X_1 - X_2)^2 \text{ (with } R^2 = .041^c, R^{2*} = .036) \text{ and}$$

$$Z = b_0 + b_1X_1 + b_2X_2 + b_3X_1^2 + b_4X_1X_2 + b_5X_2^2$$

(with $R^2 = .087^c$, $R^{2*} = .061$; and where $^c = .010 < p < .001$). To test for a significant difference between R^2 s, the following formula obtains:

$$F_{\text{diff}} = \frac{R^2_{\text{unconstrained}} - R^2_{\text{constrained}} / (df_{\text{unconstrained}} - df_{\text{constrained}})}{(1 - R^2_{\text{unconstrained}}) / df_{\text{unconstrained}}}$$

(see Cohen and Cohen, 1983). Calculating this formula first for standard R^2 s and not correcting for constraints in the squared difference score, the $F_{\text{diff}} = 2.192 < F_{\text{critical}} (2.42; df = 4,174)$, which is not significant. However, a more precise test of significant difference would involve changing $k = 1$ to $k = 3$ for the difference score—as shown above—so that the numerator degrees of freedom changes from 4 to 2. Hence, the new $F_{\text{diff}} = 4.383 > F_{\text{critical}} (3.04; df=2,174)$, which is significant. A similar correction pushes the difference in R^{2*} s from a nonsignificant $F_{\text{diff}} = 1.715 < F_{\text{critical}} (2.42; df=4,174)$ to a significant $F_{\text{diff}} = 3.430 > F_{\text{critical}} (3.04; df=2,174)$. The latter is derived by recalculating the R^{2*} : using $k = 3$ in

the adjusted R^2 formula drops R^{2*} from .036 to .025; this change of .011 and the change of numerator df from 4 to 2 makes the unconstrained R^{2*} significantly different from the constrained R^{2*} . Indeed, it seems reasonable to make these corrections given the hidden constraints characterizing difference scores.

In conclusion, this analysis will present three F_{diff} tests to assess the significance of differences between difference scores and polynomial set R^2 s. Maintaining consistency with the assertion that R^{2*} s are more precise indices of variance explained, the first F -test will involve the difference between adjusted R^2 s, as corrected for latent constraints that change numerator degrees of freedom. The second F_{diff} test will be a more conservative test, comparing standard R^2 s without correcting for implied constraints so that numerator degrees of freedom = 4. The last F_{diff} test will again compare standard R^2 s, but will correct for implied variables so that numerator degrees of freedom = 2. In effect, these changes are intended to provide more accurate evaluations of the differences between constrained and unconstrained regression estimates.

APPENDIX B

PERCEPTUAL QUESTION ITEMS FROM THE SUBORDINATE SURVEY INSTRUMENT¹

(1) Subordinate View of Supervisor Supportiveness for Work/Family (i.e., Child-Care) Conflict

Q10 Use the scale below to answer the next set of questions:

- | | 1 | 2 | 3 | 4 | 5 |
|---|----------------------|----------|----------------------------------|-------|-------------------|
| | Strongly
Disagree | Disagree | Neither
Agree Nor
Disagree | Agree | Strongly
Agree |
| a. My immediate supervisor's managerial style makes it easy to deal with child care problems during work hours. | SD 1 | 2 | 3 | 4 | SA 5 |
| b. My supervisor is supportive when I experience stress on the job due to work/family conflicts. | 1 | 2 | 3 | 4 | 5 |
| c. My supervisor is supportive when I experience stress at home due to work/family conflicts. | 1 | 2 | 3 | 4 | 5 |
| f. My supervisor is supportive of my need to juggle work and family responsibilities. | 1 | 2 | 3 | 4 | 5 |

¹These question items are taken from the subordinates' survey instrument. Questions worded almost identically were posed to the supervisors in the sample over the telephone. With the exception of the supervisor supportiveness scale, all preceding perceptual measures refer directly to subordinates' work and child-care difficulties as they influence workplace functioning.

(2) Subordinate Attitudes toward Managing Work and Child-Care Responsibilities

Q8 Using the scale below, please indicate the extent to which you agree with the following statements related to the impact of child-care responsibilities:

	1	2	3	4	5
	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
					SD SA
a. I am satisfied with my current care arrangements.					1 2 3 4 5
c. I find it easy to combine my work with my child care responsibilities.					1 2 3 4 5
e. I have found it easy to find reliable care.					1 2 3 4 5
f. I feel less stress at work because of my child care arrangements.					1 2 3 4 5
g. I rarely miss work because of child care problems.					1 2 3 4 5
h. My productivity has been helped by my child care arrangements.					1 2 3 4 5

(3) Perceptions of Subordinates Child-Care Related Absenteeism

Q9 How frequently do your current care arrangements affect you in any of these ways?

1	2	3	4	5
Almost Never	Rarely	Sometimes	Often	Almost Always
a. Getting to work				1 2 3 4 5
b. Being late for work				1 2 3 4 5
c. Missing work				1 2 3 4 5

(4) Subordinate's Work Performance

Q11 The next set of questions relate to your performance on the job. Please rate how well you believe you have performed on the job for each of the following dimensions during the past thirty days using this scale:

1	2	3	4	5
Unsatisfactory Never		Average		Outstanding Always
a. Performance				1 2 3 4 5
b. Avoiding mistakes				1 2 3 4 5
c. Finishing work on time				1 2 3 4 5
d. Work in a neat and orderly fashion				1 2 3 4 5
e. Performing up to the supervisor's standards				1 2 3 4 5

f. Satisfying others who depend upon my work 1 2 3 4 5

g. Effort level 1 2 3 4 5

(5) Subordinate's Organizational Commitment

Q10 Use the scale below to answer the next set of questions:

1	2	3	4	5
Strongly	Disagree	Neither	Agree	Strongly
Disagree		Agree Nor		Agree
		Disagree		

e. I don't care what happens to this organization,
as long as I get paid. 1 2 3 4 5

g. What happens to this organization is really
important to me. 1 2 3 4 5

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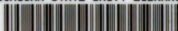
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